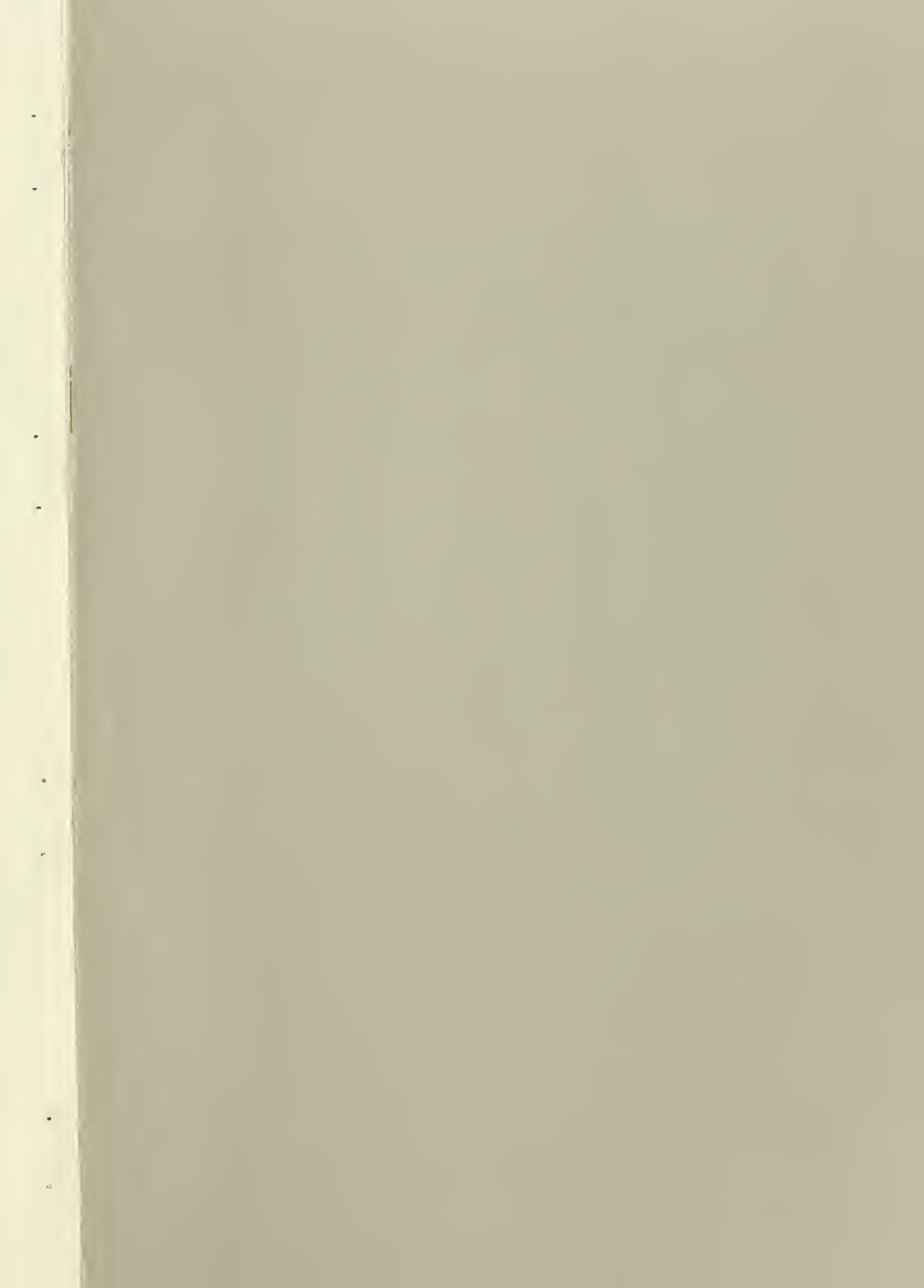




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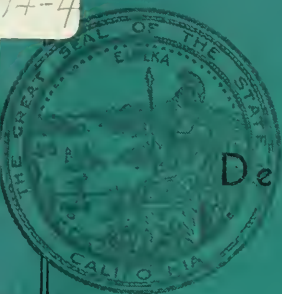
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THE RESOURCES AGENCY OF CALIFORNIA  
Department of Water Resources

BULLETIN No. 94-4

LAND AND WATER USE IN  
SMITH RIVER  
HYDROGRAPHIC UNIT


Preliminary Edition

DECEMBER 1962

EDMUND G. BROWN  
Governor  
State of California

WILLIAM E. WARNE  
Administrator  
The Resources Agency of California  
and Director  
Department of Water Resources





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State of California  
THE RESOURCES AGENCY OF CALIFORNIA  
Department of Water Resources

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Department of Water Resources



## FOREWORD

The State Legislature requested the Department of Water Resources to make a current inventory of the water resources and water requirements of the State in greater detail and to higher standards than has previously been done. Results of this inventory will be presented in two series of reports covering: (1) land and water use, and (2) water resources and water requirements.

For purposes of this inventory, the State has been divided into major hydrographic areas. These areas, in turn, have been subdivided into hydrographic units generally comprising watersheds of individual rivers. Basic data on present water uses, together with the apparent claim of water right attached thereto, present land uses, history of land and water uses, and the classification of lands will be presented separately for each hydrographic unit in the series of reports on land and water use.

The determination of available water resources and water requirements, based on economic development at specific intervals of time, will be reported in the series of reports on water resources and water requirements, to be prepared for each of the major hydrographic areas.

This land and water use report covers the watersheds of Smith River and various small coastal streams between the California-Oregon state line and the Klamath River, and is the fourth of the Bulletin 94 series. This report is a preliminary edition. After a public hearing is held in the Smith River area, the final report will be prepared and presented to the Legislature.



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1	Location of Unit
2	Land and Water Use
3	Classification of Lands

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THE RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES

1120 N STREET, SACRAMENTO

December 3, 1962

Honorable Edmund G. Brown, Governor  
and Members of the Legislature  
of the State of California

Gentlemen:

I have the honor to transmit herewith preliminary report Bulletin No. 94-4, the fourth of a series of reports of the Department of Water Resources which present detailed basic data relative to land and water use and apparent water rights within certain hydrographic units of the State. This report, entitled "Land and Water Use in Smith River Hydrographic Unit," presents results of studies conducted pursuant to legislation sponsored by Senator Edwin J. Regan and codified under Section 232 of the Water Code. This series, when complete, will form an invaluable reference of the water resources of the State in relation to the various classes and uses of land resources.

The information contained in this series of reports will provide a basis for future estimates of the amount of water which originates within each watershed, the amount which can be used beneficially within each area, and the amount of surplus or deficiency, if any.

The data presented in this bulletin will provide a factual basis for decisions of concerned interests regarding the development and use of the water resources of the Smith River Hydrographic Unit. In addition, the bulletin includes notes on the history, natural features, climate, and economy of the unit. Maps of present land use and land classification illustrate the text.

All public and private agencies, local interests, and individuals who may be concerned with the information presented herein are invited to submit their comments. A public hearing will be held after due notice to receive comments which will be considered in preparing the final report.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "William E. Warne", is written over a horizontal line.

Director

#### ACKNOWLEDGMENT

The Department of Water Resources gratefully acknowledges information contributed by the numerous water users and residents of the Smith River Hydrographic Unit and various agencies of the federal, state, and local governments.

Special mention is made of the helpful cooperation of Mr. Elmer Dent, Del Norte County Farm Advisor, for his assistance in arranging and conducting a review of information published herein.

While most of the pictures shown in this report were taken by the Department of Water Resources' photographers, some were furnished by other agencies. Special thanks are given to State Division of Beaches and Parks for the use of photographs top page 14 and bottom page 68.

STATE OF CALIFORNIA  
THE RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES

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WILLIAM E. WARNE, Administrator, The Resources Agency of California  
and Director, Department of Water Resources  
ALFRED R. GOLZE, Chief Engineer

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was conducted by the  
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Principal Engineer



## CHAPTER I. INTRODUCTION

This bulletin presents basic data on land and water use in the Smith River watershed and adjacent smaller watersheds. These watersheds are designated herein as the Smith River Hydrographic Unit. The data cover present land and water use, classification of lands, systems used to divert surface water from Smith River and its tributaries and from the smaller adjacent watersheds, histories of diversions, apparent water rights pertinent to each diversion, purpose and extent of use of diversions, seasonal quantities of water diverted during 1958, and an estimate of present consumptive use of water in the unit. A general description and a brief history of the area are also included.

These basic data were gathered during the period 1958-60 in compliance with Chapter 61, Statutes of 1956, as amended by Chapter 2025, Statutes of 1959, and codified in Section 232 of the Water Code of the State of California. This legislation provides for an inventory of water resources and water requirements of the State. This is the fourth of a series of bulletins to be prepared under this authorization. The text of Section 232, with a discussion of its history and implications, is included in this bulletin as Appendix A.

These data will provide the basis for a future determination of the quantities of water reasonably required for future beneficial use within the Smith River Hydrographic Unit. Preliminary estimates have been made and presented in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements of California."

The final determinations of these water requirements will be based on estimates of: (1) future land use, (2) economic patterns, (3) population, (4) industrial and agricultural development, and (5) recreational needs.

The data presented herein have been reviewed in preliminary form by representatives of Del Norte County, farm advisors, and local water users. These groups submitted changes which were reviewed in the field, and adjustments were made where warranted.

### Organization of Report

This bulletin is basically a compilation of data in the form of tables and plates with supplemental explanatory text. The report is divided into five chapters and four appendixes and contains three plates.

Chapter I contains a general description and a brief history of the Smith River Hydrographic Unit. Chapter II presents data on surface water diversion systems, related water rights information, measurements of quantities of water diverted, and an analysis of consumptive use. Chapter III includes a history of land use within the unit and tables of present land use. Maps prepared in connection with Chapters II and III delineate the areas of various present land uses and the locations of diversion systems. Chapter IV includes a tabulation of lands classified with regard to their potential for irrigated agriculture and for recreational purposes. Maps prepared for this chapter delineate the respective classes of land grouped into several major categories. Chapter V summarizes the report.

Appendix A presents the text of Section 232 of the California Water Code and a discussion of the pertinent responsibilities and work program of the Department of Water Resources. Appendix B is a bibliography of publications pertinent to the Smith River Hydrographic Unit. Appendix C presents a short summary of California water law and a tabulation of applications to appropriate water in the unit. Appendix D presents details of two diversions which could not be adequately described in tables contained in Chapter II.



## General Description of Area

### Location

The Smith River Hydrographic Unit consists of 779 square miles of Del Norte County lying northwesterly of the Klamath River watershed, as shown on Plate 1, Location of Unit. The Smith River and its tributaries, rising on the western slope of the Siskiyou Mountains, comprise the primary drainage system of the unit. This unit also includes those portions of the watersheds of the Illinois River and the Winchuck River within California and several small streams which flow directly into the Pacific Ocean between the Smith River and the Klamath River.

The hydrographic unit is bounded on the north by the California-Oregon border, on the east and south by the drainage divide separating the Klamath and Smith Rivers, and on the west by the Pacific Ocean.

For the purpose of this report, the Smith River Hydrographic Unit has been divided into nine subunits. Location of these subunits are shown on Plate 1, and the area of each is shown in Table 1.

TABLE 1  
AREAS OF SUBUNITS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Subunit	: : In acres	: : In square miles
Illinois River	37,600	59
Middle Fork	101,200	158
Mill Creek	23,500	37
North Fork	43,400	68
Rowdy Creek	20,400	32
Smith River Plain	61,100	95
South Fork	187,200	292
Wilson Creek	12,600	20
Winchuck River	<u>11,600</u>	<u>18</u>
Totals	498,600	779

Redwoods in  
Del Norte County



Junction of Smith River  
and  
South Fork Smith River

## Historical and Present Development

"I encamped where there was very little grass and near where the Mountain made a rapid descent to the north rough and ragged with rocks. I went to the brink of the hill and when the fog cleared away for a moment I could see the country to the north extremely mountainous, along the shore of the Ocean those mountains somewhat lower. For all appearances I came to the conclusion I must move in again toward the coast."

Diary of Jedediah Smith, May 28, 1828.

Thus did Jedediah Smith, pathfinder, trapper, first American to travel the overland route across the desert and mountains from the Mississippi to California, describe the country of the Smith River. In May 1828, on his second journey through the uncharted wilderness of what was then Mexico, Smith viewed this area from its southern edge. He was the first American to do so. A few weeks later, he had passed northward through the redwood forest and forded the rushing river which today bears his name.

It was the quest for gold, one of the unit's natural resources, that opened the country of the Smith River to settlement. In 1850, ships searching for a sea approach to the gold fields of the Trinity River explored Crescent Bay. Until then, the coast of this country was almost as unknown as the primitive forests and mountains back of it. Seventy-five years earlier, Spaniards sailing north along the California coast had charted Point St. George, near what is now Crescent City, but apparently had not touched shore. Following this Spanish exploration, ships of several nations began to ply coastal waters from Monterey to Alaska, their crews trading for fur with the Indians along the coast. This fur trade reached its peak in about 1800, but had almost vanished by the late 1840's, when the discovery of gold at Sutter's Mill opened a completely new era of exploration.

Other major commerical endeavors, now prevalent in the hydrographic unit, also had their start in the early formative years of the economic development of the unit. Food required by the miners in their quest for gold was supplied from local farms as early as 1857. The lumber industry began in the early part of 1853, and the first exportation of lumber from Crescent City occurred in 1859. The recreation potential of the area was noted in the 1850's, when a resort was established near the town of Gasquet, which at that time was a stage station on the Smith River wagon route to the inland settlements and mines.

With the spread of mining activities into the northwest corner of California, the natural anchorage at Crescent Bay became a chief shipping and distributing point. In February 1853, surveyors laid out the town site of Crescent City. Within three months, incoming settlers had established a sawmill; and within a year, the population of the area had increased to about 1,000 persons. Crescent City was incorporated in 1854, and became the county seat in 1857 when Del Norte County was formed from the since-dissolved Klamath County. From March through May of that year, 1,717 persons disembarked from ships stopping at the city, and crews unloaded 1,278 tons of freight. Crescent City served the camps and diggings of the gold miners scattered throughout northwest California and southern Oregon.

During the period following the original influx of gold seekers in the 1850's, and continuing until 1890, Crescent City and her environs had a transient population which varied according to the special economic demands for mineral and timber products. The period 1890-1920, however, saw a somewhat static economy supporting a population of about 1,000 people. The next 40 years saw a general growth in the Crescent City area, except during the depression years of the 1930's when the population dwindled from 1,700 to



Lumber  
Loading,  
Crescent  
City  
Harbor



Fishing  
Boats  
in  
Crescent  
City  
Harbor



about 1,300 by 1940. With the advent of World War II, the economy of the area began to climb; and the population in and around Crescent City experienced an increase to about 4,500 people in 1950, and to about 9,800 people in 1960.

Since 1920, this same trend has been experienced throughout the entire Smith River Hydrographic Unit. It was estimated that in 1920 there were some 2,300 people in the unit. The 1930 population of 4,100 in the unit decreased to about 4,000 in 1940, and then increased to 6,700 in 1950, and to 15,100 in 1960.

The unit's second largest community, Fort Dick, is located 8 miles north of Crescent City. This community is a scattered, unincorporated area, having its center about one-half mile west of the present U. S. Highway 101, and about a mile south of Smith River. As lumber mills, large dairies, and other industries rose along the coastal plain, Fort Dick grew along the old U. S. Highway 101 and developed into a residential community intermixed with farms and businesses. The impetus of this growth can best be shown by the increase in population as indicated by the 1950 and 1960 census figures, which report a population of about 1,200 for 1950 and about 3,100 for 1960.

Smith River, one of the older towns in the hydrographic unit, is typical of communities affected by the growth of agricultural industry. Like Crescent City, 13 miles to the south, Smith River, which lies at the junction of Dominie and Rowdy Creeks in the northeast portion of the Smith River plain, had its beginning in August 1853, when the first settlers built a few cabins at this site. The town, which chiefly serves a farming area, did not grow as rapidly as Crescent City, and by 1880 consisted only of a store, a hotel, a blacksmith shop, and two dwellings. By 1894, however, it had grown to a hundred homes and business houses, the chief of which housed the Crescent Creamery. The creamery at that time had a daily milk-processing capacity of

about 40,000 pounds. Since that time, the dairy industry has contributed substantially to the economy of Smith River. For some years however, timber products have been the major source of income to the community. The growth of Smith River has been most rapid since World War II, due to the expansion of the lumber industry. This trend is indicated by the increase in population from 900 in 1950 to about 2,000 in 1960.

The community of Gasquet, which dates back to the 1850's when it was a stage station and holstery on the Smith River wagon route to the inland settlements and mines, is a recreational community situated at the junction of the Middle and North Forks of Smith River. Here, where the climate is very sunny and mild, and the fishing excellent, a favorite resort area has flourished for years. While still primarily a recreational area, Gasquet has increasingly become the residential choice of many people who prefer to live in its warmer climate, and commute to work in the less sunny coastal belt near Crescent City. This is best indicated by the fact that the permanent residents in 1960 numbered 240, twice the number living there in 1950.

Gold mining, the main enticement for early settlers, remained the backbone of activity in the Smith River Hydrographic Unit for about 15 or 20 years. Until about 1868, the miners made a number of profitable strikes along the tributaries of the Smith River, in addition to scouring the more productive areas in the Klamath River Basin to the east. By 1868, however, easy gold had become scarce, and although an occasional placer mine is still worked, gold mining today has been relegated to a position of lesser importance to the economy of the area.

During most of the past 20 years, chromite, a prime source of chromium, has brought more income to the unit than any other single mineral product. Chromite production, however, has dropped sharply since 1957, due to the federal government's discontinuance of stockpiling this mineral.

The mineral industry, due largely to the production of sand and gravel and chromite, is presently the third most important industry in the hydrographic unit. The production of sand and gravel, accounted for about 75 percent of the total income from minerals within the unit during 1958. This activity, which is closely related to general expansion, reflects the rapid economic growth of the area during the last few years.

Other minerals occurring within the hydrographic unit, and which in the past have been mined in significant quantities include copper, produced at the Alta Copper Mine near the head of Copper Creek, and mercury. Deposits of platinum, clay, and silver have been also developed, although to a lesser extent. In addition, deposits of manganese, graphite, coal, iron, mortzite, and nickel exist within the hydrographic unit. However, these are not present in large commercial quantities and therefore have limited importance in the mineral industry.

Just as the fur trader gave way to the miner in the early history of the Smith River Hydrographic Unit, so also did the miner give way to the lumberjack. The exportation of lumber began in 1859 when a sawmill with a daily capacity of 40,000 board feet was built at Crescent City. About 325,000 acres, or sixty-five percent of the hydrographic unit, are commercial timberlands, estimated by the U. S. Forest Service to contain about 12.2 billion board feet of saw-timber. This commercial timber is composed of three main types: redwood, Douglas fir, and some stands of intermixed true fir, pine, and Douglas fir. Small amounts of other conifers, including sitka spruce, western hemlock, and several varieties of cedar, also grow in the unit. There are also hardwoods such as Oregon myrtle, red alder, giant chinquapin, madrone, big leaf maple, and several varieties of oak.



The forests of Smith River Hydrographic Unit, in addition to being its greatest natural resource, have long been the mainstay of its economy. The lumber industry remained small after its inception in 1853 until additional sawmills were constructed in 1869 and 1872. In 1889, 11.5 million board feet of lumber were exported from the hydrographic unit. This shipping of lumber assured Crescent City's continued importance to the surrounding area. In 1900, the Hobbs-Wall Company established two mills which produced as much as 140 million board feet a year. This production represented the bulk of the lumber output of the hydrographic unit until 1939, when this company went out of business. When the Hobbs-Wall Company failed, the annual lumber production in the unit dropped to 22 million board feet, its lowest level since 1900. However, with the outbreak of World War II, production began to grow steadily, so that by 1948 the output again reached 100 million board feet per year.

The present-day pattern of the lumber industry in the Smith River Hydrographic Unit began to develop about 1950, when the production of veneer, plywood, and remanufactured lumber commenced. The number of plants making these special products increased from three in 1950, with an output of 30 million board feet, to 12 in 1959, with a production of 180 million board feet. The total lumber output amounted to about 120 million board feet in 1950 and to about 435 million board feet in 1959. About 85 percent of the present output of lumber within the hydrographic unit is produced in the vicinity of Crescent City, as compared to only 60 percent of the production in 1950.

With the improvement of U. S. Highway 101, a considerable amount of plywood and veneer, items which are subject to damage from ocean spray, are

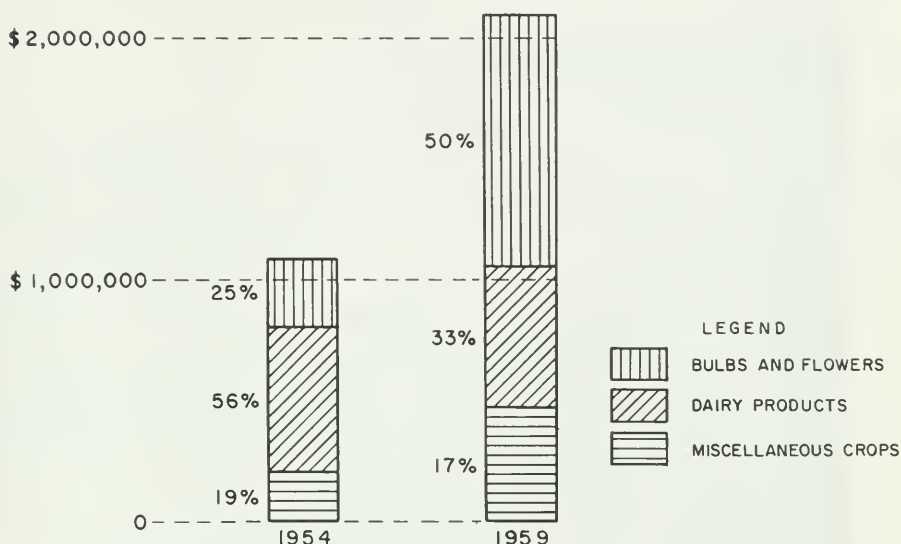
now trucked from the unit. However, about 90 percent of the lumber output continues to be shipped by water from the Crescent City Harbor, with the bulk of it going to Hawaii and Southern California.

Agriculture has continued since the early years to be the second largest industry in the Smith River Hydrographic Unit. Agricultural activities to supply food locally were considerable as early as 1857. At that time, the production of grain and fruit was prominent, but by 1880, dairying had become the chief activity. Some 493,000 pounds of butter were exported from Crescent City in 1889.

The predominant use of land for dairy pasture established an agricultural pattern in the hydrographic unit which has remained relatively unchanged for three-quarters of a century. For many years irrigation was not considered necessary in this area because of the extremely wet climate. Following the introduction of irrigation during the 1940's, a significant new development in the agricultural pattern occurred. In 1954, this new activity, the commercial raising of lily bulbs and flowers, occupied only about 150 acres of irrigated land, and contributed about 25 percent of the total farm income. However, between 1954 and 1959 the income from these products increased fourfold, and in spite of increases in dairying and other farm sales, became the main item of farm income in the Smith River Hydrographic Unit. Figure 1 illustrates this rapid growth and the increase in total farm income during those years.

Today lily bulbs and flowers are sent from the hydrographic unit to all parts of the country and overseas. Although bulbs and flowers are oftentimes shipped from Crescent City by air, the majority of the agricultural products are transported to their local and Northern California markets by truck. The distance to market has always been a limiting factor in developing

Fig. 1. FARM INCOME  
SMITH RIVER HYDROGRAPHIC UNIT



an export market for agricultural products from the area. Since the hydrographic unit does not have rail service, and with the nearest rail terminals located in Arcata, 75 miles to the south, and in Grants Pass, Oregon, 87 miles to the northeast, consumer goods enter the area almost entirely by truck and ship.

While recreation is still one of the smaller activities contributing to the economy of the Smith River Hydrographic Unit, it has kept pace with the general development of the unit. With improved accessibility by roads, recreation seems destined to become a major factor in the economy of the hydrographic unit. Numerous travelers pass through the unit along the famous Redwood Highway, many of whom come to fish, picnic, camp, or hunt.

About 20,000 persons a year visit Jedediah Smith Redwoods State Park, a protected stand of virgin forest named for the pathfinder. Many

Del Norte  
County  
Coastline



Beach near  
Crescent  
City

also visit the two smaller state parks within the unit. In addition, about 100,000 tourists annually are drawn to the unit by its national and privately owned forests. While most of these visitors are from California, there are also many tourists from other states and foreign countries. The inflow of such tourists is a great benefit to the economy of the unit.

Fishing continues to attract visitors to the hydrographic unit. Many come from hundreds of miles to fish for the salmon and steelhead trout found in local streams. Others head for the coast where clam digging has its enthusiasts, and surf and ocean fishing are popular.

Commercial ocean fishing has become an industry which provides the hydrographic unit with an annual income varying from about half a million to over a million dollars. From year to year, the annual catch varies in quantity and kind. Salmon has been the most consistent principal variety in recent years, but other important varieties are crab and sole. Ocean shrimp, albacore and lingcod are taken in smaller, but significant quantities.

#### Natural Features

The general topography of the Smith River Hydrographic Unit can be divided into two general types: (1) the Smith River Plain, an emerged marine terrace with low relief extending generally along the coastline of the Pacific Ocean; and (2) the rugged inland Klamath Mountains. The Smith River Plain covers about 60 square miles, extends generally north and south from the town of Smith River to Crescent City, and inland 3 to 5 miles from the ocean to the base of the relatively low mountains.

Mountains comprise about 90 percent of the total land area of the Smith River Hydrographic Unit. Although elevations exceeding 5,000 feet occur only on the eastern edge of the unit (the highest point in the unit is the



peak of Bear Mountain at an elevation of 6,400 feet), the terrain is very rough and difficult to traverse except on the secondary road system of the populated Smith River Plain and the two main state highways leading through the mountains. U. S. Highway 101 provides north and south connections along the coast, and U. S. Highway 199 generally follows the Smith River north-easterly from the coastal plain to intersect U. S. Highway 99 at Grants Pass, Oregon.

The Smith River Hydrographic Unit is located within two physiographic provinces of California. The Smith River Plain along the coast is entirely within the Northern Coast Ranges physiographic province, while the inland mountains surrounding it on the north and east are in both the Northern Coast Ranges and the Klamath Mountains provinces. The geologic formations of the Smith River Plain range in age from Jurassic to Recent. Rocks of Jurassic age, consisting mainly of arkose, chert, and schist, constitute the bedrock underlying the plain and also form the inland mountains. Overlying the Jurassic bedrock throughout most of the Smith River Plain is the Battery formation, consisting of fine sand and silty clay. Its average thickness is about 35 feet. In the vicinity of Crescent City, the St. George formation lies between the Jurassic bedrock and the Battery formation. The St. George formation is of marine origin and is composed of sandstone and shale. In localized areas, the Jurassic rocks are overlain directly by unconsolidated Pleistocene river terrace deposits or Recent flood plain deposits. The terrace deposits occur in several areas: (1) along the Smith River upstream from U. S. Highway 101; (2) in the vicinity of Fort Dick, where the largest terrace covers 5 to 6 square miles; and (3) a narrow strip north of the Smith River. Recent flood plain deposits form the present Smith River flood plain, and vary in width from a few feet near the junction of the South Fork with the

main Smith River, to about a mile at Fort Dick, and to about 4 miles near the tidal mouth of the river. Recent alluvial fan deposits are located on a narrow, almost continuous strip along the foot of the mountains.

The rocks of the inland mountain ranges are principally Jurassic and Cretaceous shale, sandstone, conglomerate, greenstone, and ultrabasic rocks, the last in part altered to serpentine. In the western part of the mountains, younger Tertiary shale, siltstone, and gravel deposits occur at high elevations. Farther east, granitic rocks are present. The Tertiary materials are relatively undeformed, but the older rocks are highly folded and faulted.

Soils suitable for agricultural developments within the Smith River Hydrographic Unit are restricted, for the most part, to the Smith River Plain. The soils of the plain were formed largely from alluvial deposits but vary markedly because of differences in their ages.

The major soil body found in this area belongs to the older alluvial or terrace grouping. These terrace soils are located generally along U. S. Highway 101 and extend the entire length of the plain. They have a relatively fine texture, an acid reaction and, under the existing condition of high rainfall, a moderately good internal drainage. Many parcels of the land mantled with these terrace soils originally afforded a lush stand of redwood forest, but presently support both irrigated and non-irrigated grain and pasture.

The more recent alluvial soils are found in the lower flood plains immediately adjacent to the Smith River, and are generally rather coarse texture, well drained, and readily suited to irrigation development. However, some risk might be anticipated as the area is subject to flooding and erosion.

North of Crescent City, a high water table and surface flooding affect many isolated pockets of land inland from the coastal sand dunes and

along the margins of Lake Earl. These lands afford small acreage for late summer and fall grazing.

Immediately west of Lake Earl lies an area of extremely coarse-textured, relatively infertile soil. The soil lies upon the characteristically hummocky surface of wind-deposited sand dunes; and, because of the relief and a low-range moisture retention, it is difficult to irrigate.

#### Climate

The Smith River Hydrographic Unit is one of the wettest sections of California. The average annual precipitation varies from about 60 inches at Point St. George, the westernmost coastal point, to over 125 inches at some of the higher inland points. In general, the precipitation in the hydrographic unit is largely orographic in nature, increases with elevation, and at any given elevation is somewhat greater on the windward (southwest) slopes of the mountains. Approximately 75 percent of the precipitation occurs from November 1 through March 31, and about 90 percent from October 1 through April 30. Although the percentage of summer precipitation is small, coastal areas of the unit usually receive some rainfall in both July and August.

Snowfall, which is closely related to elevation, varies in the Smith River Hydrographic Unit from a negligible amount along the coast, to 28 inches at the 1,700-foot elevation of Elk Valley, to 126 inches at the 2,420-foot elevation of Monumental. The average lowest elevation at which there is snow on the ground on April 1 is approximately 4,000 feet.

Maximum and minimum recorded seasonal precipitation, and estimates of 50-year mean seasonal precipitation at selected stations within or adjacent to the Smith River Hydrographic Unit are shown in Table 2. The extremes shown are the highest and lowest seasonal precipitations observed



during the period of record indicated for each station. The 50-year (1905-06 to 1954-55) mean seasonal values are estimates, except the recorded quantity shown for the Orleans station, of the average depth of rainfall which would have been observed at these stations if they had been in existence during those year. It is considered that the values presented for the 50-year period are representative of long-term mean seasonal precipitation available to the unit.

TABLE 2  
PRECIPITATION AT SELECTED STATIONS IN OR  
NEAR SMITH RIVER HYDROGRAPHIC UNIT  
(In inches)

Station	Elevation: (in feet)	Annual precipitation			Period of record
		Recorded		Estimated:	
		Maximum	Minimum	50-year mean	
Brookings, Oregon	80	107.62 (1937-38)	38.48 (1923-24)	77.36	1914-1959
Crescent City 1N	45	113.06 (1889-90)	51.76 (1946-47)	62.57	1885-1909, 1946-1959
Crescent City 7ENE	125	107.77 (1920-21)	34.52 (1923-24)	80.07	1913-1945, 1953-1959
Crescent City 11E	360	132.72 (1955-56)	71.68 (1954-55)	90.54	1947-1959
Elk Valley	1,711	118.44 (1955-56)	54.63 (1938-39)	76.25	1938-1959
Gasquet Ranger Station	384	125.89 (1955-56)	74.46 (1954-55)	85.57	1943-1959
Klamath	25	107.27 (1957-58)	55.87 (1946-47)	77.04	1941-1959
Orleans	403	81.93 (1903-04)	22.78 (1923-24)	47.84	1903-1959

The climate of the Smith River Hydrographic Unit is influenced by marine air masses, cold air drainage from higher elevations, and occasionally by drier air masses associated with easterly winds. The Pacific Ocean, which is only 35 air miles from the most inland point in the unit, has a great moderating effect on the climate. However, this moderating influence is somewhat offset by the northerly latitude of the unit; and frost is more frequent here than in other coastal areas of the State. The danger of frost increases with elevation and with distance from the ocean.

The moderate climate of the unit is illustrated generally by the temperature data presented in Table 3. These data, with the exception of the frost-free period values, were taken from the "Climatic Summary of the United States -- Supplement for 1931 through 1952," Bulletin W, published by the U. S. Weather Bureau. The values for the frost-free period were derived by the Department of Water Resources, and represent the average period between the last day in spring and the first day in the fall when the daily minimum temperature fell to 32 degrees Fahrenheit or below.

#### Water Resources

The Smith River is the only stream in the hydrographic unit for which a long record of runoff exists. This record is supplied by a stream gaging station located a half-mile below the mouth of South Fork Smith River. The station, "Smith River near Crescent City," records a drainage area of 613 square miles, some 90 of which lie within that portion of the North Fork Smith River watershed which lies in Oregon. Relatively uniform from year to year, the runoff at this station totals about seven acre-feet per acre per year, probably the greatest runoff from an area of this size anywhere in California. Variations in flow within the year are also comparatively small. Table 4 summarizes the records for this station.

TABLE 3

SUMMARY OF TEMPERATURE DATA AT SELECTED STATIONS  
IN OR NEAR SMITH RIVER HYDROGRAPHIC UNIT  
(1931-1952)  
(In degrees Fahrenheit)

Station	: :Elevation: :	: Average :Jan. :July :Annual:	: Extreme :High : Low	: Average : Average : daily : frost-free	: period
Crescent City 1N	45	44.2 57.9 51.7	92 24	15.8	254
Crescent City 7NE	125	46.1 62.2 54.4	100 19	20.7	---
Elk Valley	1,711	36.3 65.4 50.2	105 0	26.9	125
Happy Camp Ranger Station	1,090	39.0 73.1 55.9	115 6	31.1	175
Orick - Prairie Creek Park	161	42.8 59.6 51.9	95 19	18.1	---
Orleans	403	41.5 72.3 56.8	113 14	29.0	222

TABLE 4

SUMMARY OF RUNOFF DATA  
SMITH RIVER NEAR CRESCENT CITY  
(1931-37 and 1938-58)

Item of record	: : Acre-feet :	: Percent : : of : : average :	: Cubic : feet per : second
Average runoff for period of record	2,720,000		---
Runoff in minimum year of record, 1933-34	1,550,000	57	---
Runoff in maximum year of record, 1955-56	4,164,000	153	---
Runoff in maximum month, January 1953	1,349,000	---	---
Maximum instantaneous flow of record, December 22, 1955	---	---	165,000
Minimum instantaneous flow of record, October 21, 1931	---	---	168

During the 1957-58 water year, the year of this study, recorded runoff at this station totaled 3,769,000 acre-feet. Despite the fact that this amount was the third highest on record, and represented 140 percent of the average, the runoff between May 1 and September 30, 1958, was only about 60 percent of the average for this period of maximum use.

## CHAPTER II. WATER USE

Some 50 to 60 percent of the water presently used in the Smith River Hydrographic Unit is diverted from surface runoff, and the remaining portion pumped from ground water. For this investigation a survey was made of the diversion and use of water from surface sources. Survey data reported herein include locations and descriptions of diversions, uses and amounts of water diverted, and information on apparent water rights relative to diversions. The criterion for inclusion of individual diversions in this report is whether they apparently divert 10 acre-feet or more per year, regardless of the purposes served. Many of the small diversions omitted on this basis were those serving only one or a few domestic users.

Quantities of water diverted during 1958 were measured in order to further describe the water use conditions. The total surface water diverted is an extremely small fraction of the total runoff of the hydrographic unit.

The measured quantities do not necessarily represent average diversions, since during any single year the quantity diverted will be influenced by precipitation during the growing season and the available streamflow. As stated in Chapter I, runoff in the Smith River, the source of the bulk of the surface runoff in the unit, during the summer of 1958 was only about 60 percent of the average. Considerations other than available water supply, such as economic factors, may also affect the relation of any diversion record to typical operating conditions. No attempt was made herein to assess these factors. The diversion quantities reported herein generally represent the actual amounts of water taken from the respective sources, and therefore include recoverable and irrecoverable losses incidental to the primary use.

Urban water service in the unit is provided at Crescent City, Smith River, and Gasquet -- all from surface water sources. Crescent City and the adjacent urban area are served by the system belonging to the city; whereas Smith River and Gasquet, being unincorporated, are served by small private and mutual water companies. The diversions which supply these three as well as a few smaller communities, are included in tabulations in this report. Of the rural domestic uses, most are supplied by individual wells, but some are supplied by diversion of surface waters.

The location of water wells and the measurement of their production were not covered in this investigation. The areas of all irrigated lands were determined and are reported in Chapter III.

#### Water Rights

The nature and extent of all rights pertaining to the water supply of an area are an important consideration in the determination of the total water requirements of the area. This report, therefore, includes information about water rights in general and about rights of record within the Smith River Hydrographic Unit.

Most of the water use in the Smith River Hydrographic Unit is based on riparian rights or on appropriative rights established under the provisions of the Water Commission Act of 1914. As of June 28, 1960, there were on file with the State Water Rights Board a total of 120 applications to appropriate water from the streams of the unit. Permits or licenses had been granted on 113 of these applications, four were pending with the board, and three were incomplete as of that date.

Two of the incomplete applications, for storage of 1,235,000 acre-feet per annum at the proposed Canthook Reservoir on the South Fork Smith River, are held by the California Water Commission under the provisions

of Section 10500 of the Water Code. The other 118 applications are for local use, including the direct diversion of a total of about 50 cubic feet per second and diversion to storage of a total of 202 acre-feet per annum.

The California Law of Water Rights, as related to both surface and underground water, is described briefly in Appendix C. A tabulation of data relative to the applications on file with the State Water Rights Board is presented in Table C-1 of Appendix C. Data pertaining to the apparent water rights exercised by the diversions described in this report are presented in Table 5.

#### Surface Water Diversions

An attempt was made during the survey to locate and obtain data with respect to all diversions of more than 10 acre-feet per year. All diversions actually in use in 1958, and those which had been used within the preceding five years, were included. The date of last use, if known, was recorded for discontinued diversions. Systems for direct diversion, as well as those providing for significant surface storage, were located. All reservoirs which had surface areas of about 3 acres or more were mapped. This size was considered the minimum size that could be delineated on the aerial photographs used. Reservoirs located along, and operated in conjunction with, ditches and pipelines are shown on the land and water use maps, but are not considered as separate systems, and are not assigned location numbers. Similarly, points at which canal systems intercept minor intermittent streams and receive small amounts of water in addition to the primary supply, are not considered as separate diversions.

In some situations, water users have made efficient use of water supply by diverting field runoff or spill collected from their own upstream



Crescent City  
Diversion  
from  
Smith River  
(17N/1W-13B1)



Trout Haven  
Diversion  
from  
Monkey Creek  
(17N/3E-3R1)



diversion systems. In this investigation, such points of redirection are neither located on the maps nor assigned numbers. If return flow from another water user's operation is redirected, or if there is doubt as to the origin of the water, the diversion is delineated and assigned a number. Diversion systems of water companies or groups of water users are considered as single units; individual customer distribution points are not shown on the maps.

There were 62 diversions of surface water located in the unit in 1958. Points of diversion and main ditches or pipelines used to convey water from them are delineated on the 10 sheets of Plate 2, entitled "Land and Water Use." The diversions are listed in Table 5.

#### Numbering System for Surface Water Diversions

Surface water diversions are numbered to indicate their approximate location according to township, range, and section within the federal land survey system. In this report, each section is subdivided into 40-acre plots, and the diversions are numbered within each of these 40-acre plots according to the order in which they were located. This system is illustrated on Plate 2. For example, diversion 17N/2E-20R1, which is shown on Sheet 3 of Plate 2 labeled as "20R1," is the first diversion located in the southeast quarter of the southeast quarter of Section 20 in Township 17 North, Range 2 East, Humboldt Base and Meridian (HB&M).

#### Descriptions of Surface Water Diversions

Description, history, and other information relating to surface water diversions were obtained by field inspection, by interview with water users or their representatives, and by reference to prior reports and official records. This information is summarized in Table 5. Data in the table are

arranged by diversion location number within each subunit. Each location number is followed by the name of the owner, the source of water, the purposes of each diversion, the quantity of water diverted during 1958, the extent of use, such as the number of acres irrigated, and the method of application of water. If the purpose listed is not the usual use for that diversion, notation is made in the "remarks" column. The extent of domestic use is specified only when five or more connections are served. Stockwatering of less than 10 head of livestock is considered to be a domestic use. The extent of irrigation use is based on the land use survey described in Chapter III.

The types of water rights under which the respective diversions are considered to be made are indicated in Table 5 under "apparent water right." Diversions apparently made under rights based on the appropriative doctrine (see Page C-5, Appendix C) are listed as "appropriative." Those diversions for which the conditions for riparian use as described in Appendix C apparently prevail, but for which no appropriation was known to exist, are listed as "riparian." Diversions listed as appropriative may also be riparian, although no attempt was made in such cases to determine the riparian status.

The actual amount of the right if established and known, and a reference to the source of the data, are also included under "apparent water right." In the case of an appropriative right, the amount tabulated is that found in the filing, if any, or in the application, or in the latest permit or license which may have been issued in connection with the application. The reference given for an appropriation initiated after the effective date of the Water Commission Act of 1914 is the number of the application on file with the State Water Rights Board. For appropriations prior to 1914, the reference, if known, is the book and page number of the official records of Del Norte County. Such filings were made in accordance with Sections 1410 and 1422 of the Civil Code, as enacted in 1872, which preserved the priority

TABLE 5  
DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Location number and/or owner	Source	Water use in 1959		Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks	
		Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount				Reference
ILLINOIS RIVER SUBUNIT										
18W/4E-201 (Sheet 2)	Carl A. Misting	Elk Creek	Fish culture Deer.	10,000 trout Fishing	Not meas.	Approp.	2.0 cfs	A-18608A	Gravity: wood dam 8 feet high, 40 feet long with short wood flume and 400 feet of earth ditch to trout pond.	Former owner: Leslie Allen.
19W/5E-201 (Sheet 2)	Alvin Placer Mines	Dunn Creek	Mining Domestic	Sluicing 5 families or connections	Not meas.	Approp.	3.0 cfs	A-6126A	Gravity: wood dam 6 feet high, 45 feet long, with 350 feet of wood flume to mine; area of earth ditch to mine serves incidental uses.	
MIDDLE FORK SUBUNIT										
17W/2E-1931 (Sheet 3)	Gasquet Mutual Water Company	Tributary to Smith River	Munic.	37 connections	Not meas.	Approp.	0.075 cfs	A-503A	Gravity: 0.3 mile of 4- and 6-inch pipe to service area.	Former owners: C. R. and J. L. Ward.
17W/3E-201 (Sheet 3)	Charles R. Coughlin Nina G. Waller	Spring tributary to Smith River	Munic.	37 connections	Not meas.	Approp.	(*)	Book 9, page 173A A-7913A	Gravity: 800 feet of earth ditch and 200 feet of 6-inch pipe to service area.	For additional water right information, see appendix D.
17W/3E-202 (Sheet 3)	Upper Field Ranch Charles R. Coughlin Nina G. Waller	Spring tributary to Smith River	Domestic	6 connections	Not meas.	Approp.	0.03 cfs (*)	Book 9, page 173A A-7912A	Gravity: 0.2 mile of earth ditch, 6-inch pipe, and wood flume to area of use.	For additional water right information, see appendix D.
17W/2E-311 (Sheet 4)	Trout Haven Hollis J. and Jean Nurreley*	Monkey Creek	Fish culture	400,000 trout per year for stock and food	Not meas.	Approp.	2.25 cfs	A-11523A	Gravity: concrete dam 10 feet high, 60 feet long with 125 feet of earth ditch, 110 feet of 6-inch pipe, and 2,400 feet of wood flume to area of use.	Former owners: Glen R. Abby, McCammon, John L. Merrin. Land leased from United States Six Rivers National Forest.
17W/3E-311 (Sheet 4)	E. M. Fletcher Charles Tuttle	Patrick Creek	Power	15 kw	Not meas.	Approp.	5.0 cfs	A-6043A*	Gravity: concrete and log dam 5 feet high, 50 feet long with 35 feet of 24- and 36-inch pipe, 0.3 mile of earth ditch and 300 feet of 18-inch pipe to powerplant.	Former owners: Lottis Raymond and Sons, Samuel J. Wilson, Patrick Creek Corp.
17W/3E-311 (Sheet 4)	Howard E. and Minnie Raymond	Spring tributary to Patrick Creek	Power	2.5 kw Less than 5 families or connections	Not meas.	Approp.	0.28 cfs	A-15334A*	Gravity: concrete dam 4 feet high, 9 feet long, with 0.1 mile of 4-inch pipe to area of use.	Water right assigned to Ed Carlson February 1960.
17W/4E-1931 (Sheet 4)	Elmer E. and Pearl A. Johnston	Tributary to Middle Fork Smith River	Power	18.7 kva capacity 12 connections	Not meas.	Approp.	2.5 cfs	A-12045A	Gravity: concrete dam 14 feet high, 30 feet long with 1,400 feet of wood flume and 0.1 mile of 12-inch pipe to area of use.	

\* See remarks  
- Information not available  
For lettered footnotes, see last page of table

TABLE 5. (Continued)  
DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Location number and/or Plate 2 sheet number	Overseer name and/or owner	Source	Water use in 1938		Amount diverted in acre-feet	Apparent water right		Indicated date of approval prior to first use	Description of diversion system	Remarks					
			Purpose	Extent and method of use		Type	Amount				Reference				
MILL CREEK SUBUNIT															
B B & M 138/12-1301 (Sheet 7)	C. F. and Marie Buffman*	Mill Creek	Irrig.*	(*)	None	Approp.	0.06 cfs	1953	Pump: portable, 7½-hp gasoline engine with direct connection to sprinkler system.*	Overseer changed to Ballin Reduced Co. in 1951. Previously irrigated 9 acres. Diversion equipment used at 138/12-681, -781, -701, and 138/12-1301. Diversion equipment used at 138/12-681, -781, -701, and 138/12-1301. In Smith River Plain Subunit.					
							A-15193 <sup>a</sup>								
							None								
											Approp.	0.04 cfs	1953	Pump: same as 138/12-681.	Previously irrigated 3 acres. Other remarks under 138/12-681 pertain.
											A-15199 <sup>a</sup>				
Approp.	0.10 cfs	1953	Pump: same as 138/12-681.	Previously irrigated 13 acres. Other remarks under 138/12-681 pertain.											
Approp.	0.09 cfs				1953	Pump: same as 138/12-681.	Previously irrigated 16 acres. Other remarks under 138/12-681 pertain.								
Approp.	0.33 cfs							1955	Pump: same as 138/12-681.	Previously irrigated 36 acres. Other remarks under 138/12-681 pertain.					
A-16445 <sup>a</sup>															
NORTH FORK SUBUNIT															
138/12-471 (Sheet 1)	Robert R. Moore	Spring tributary to North Fork Smith River	Power Domestic	2-5 kv Less than 5 families or connections	Not meas.	Approp. Approp.	0.15 cfs 0.15 cfs	Prior 1951	Gravity: small earth dam with 12 feet high, 12 feet long, 4-inch pipe to powerplant, and parallel 4-inch pipe for domestic supply.	Former owners: Anthony Water System, T. B. Culler, James R. Owen, Smith River Power Company, Public Utilities of California. Supplies town of Smith River in lieu of 138/14-2301 during winter months when water in Dominic Creek is muddy.					
							A-16749 <sup>a</sup> A-14606 <sup>a</sup>								
ROWLEY CREEK SUBUNIT															
138/14-2301 (Sheet 1)	William K. Owen (Smith River town supply)	Dixie Creek	Munic.	150 connections*	Not meas.	Approp.	1,000 MI	1898	Gravity: earth and log dam 7 feet high, 40 feet long, with 10- by 8½-foot settling basin and 0.7 mile of 8-inch pipe to service area.	Former owners: Anthony Water System, T. B. Culler, James R. Owen, Smith River Power Company, Public Utilities of California. Supplies town of Smith River in lieu of 138/14-2301 during winter months when water in Dominic Creek is muddy.					
							Book A, Page 63 <sup>b</sup>								
138/14-2302 (Sheet 1)	William K. Owen (Smith River town supply)	Spring tributary to Dixie Creek	Munic.	(*)	Not meas.	(c)	--	1952	Gravity: earth and log dam one foot high, 12 feet long, with 10- by 8½-foot settling basin of 138/14-2301.						

\* See remarks

-- Information not available  
For lettered footnotes, see last page of table

TABLE 5 (Continued)  
DESCRIPTORS OF SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1958			Apparent water right			Indicated date of approval or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
SMITH RIVER PLAIN SUBUNIT											
N 8 & M 168/15-16A1 (Sheet 5)	Douglas Park Water System	Tributary to Smith River	Domestic	14 connections	Not meas.	Approp.	0.025 cfs	A-618A	1929	Gravity; 0.1 mile of 4- and 8-inch pipe to area of use.	Former owner: Dr. G. H. Douglas. Serves water users in community of Douglas Park in Smith River. Diversion of water from Smith River. Diversion of water from organization: President, Robert Home; Secretary, Bertha Garrison.
168/15-16A1 (Sheet 5)	G. F. and Maria Huffman	Jordan Creek	Irrig.*	(*)	None	Approp.	0.33 cfs	A-14446*	1954	Pump; same diversion equipment as 158/15-16A1, Mill Creek Subunit.	Former owner: G. F. Huffman, Sr. Previously irrigated 4.3 acres. Diversion equipment also used for Huffman's 5 diversions in Mill Creek Subunit. Water right cancelled August 1955.
168/15-16A2 (Sheet 5)	G. L. English Aired Short	Jordan Creek	Irrig.	24 acres by sprinkler	7	Approp.	0.37 cfs	A-17811*	1957	Pump; 10-hp electric motor with 10,000-foot 8-inch pipe to distribution system.	
168/15-16A1 (Sheet 5)	Charles E. Dillman	Old Mill Creek	Irrig. Stock	14 acres by sprinkler 17 hand	12	Mixtures	--	--	About 1980	Pump; two 2-hp electric motors with direct connection to distribution system.	Former owners: Hobbs, Wall and Company, Dayton.
168/15-16A1 (Sheet 5)	Cal-Ore Veneer, Inc.	Tributary to Lake Earl	Indust.	Lumber mill	62	(c)	--	--	1931	Pump; 2-hp electric motor with short 4-inch pipeline to log pond.	Former owner: Del Norte Veneer.
168/15-16A1 (Sheet 5)	Standard Veneer and Lumber Company	Tributary to Lake Earl	Indust.	Lumber mill	Not meas.	(c)	--	--	1931	Pump; 2-hp electric motor with short 8-inch pipeline to log pond.	
168/15-16A1 (Sheet 5)	Cal-Ore Veneer, Inc.	Spring's tributary to Lake Earl	Indust.*	(*)	None	Approp.	0.01 cfs 35 af Storage	A-14083A	1950	Gravity; earth dam 6 feet high, 35 feet long, with spring-fed 50-acre-foot log pond.	Former owner: Lucas Lumber Company, Dabold Mills, Inc. Previously supplied a lumber mill.
168/15-16A1 (Sheet 5)	Ken D. Cunningham	Jordan Creek	Irrig.	27 acres by sprinkler	3	(c)	--	--	1955	Pump; 2-hp electric motor with 0.2 mile of 2- and 3-inch pipe to distribution system.	
168/15-16B1 (Sheet 5)	Wardford Veneer and Plywood Corp.	Jordan Creek	Indust.	80-acre-foot log pond	36	Approp.	0.26 cfs 64 af storage	A-14607*	1931	Pump; 2-hp electric motor with 0.7 mile of 4-inch pipe to log pond.	Former owner: Pacific Veneers, Inc.
168/15-16B1 (Sheet 5)	Northern California Plywood, Inc.	Dead Lake	Power Indust.	1,543 kva capacity Lumber mill	2,647*	Approp.	11.14 cfs	A-1526A	1933	Pump; one 60-, two 10- and one 1-hp electric motors with 10,000-foot pipeline for uses indicated, and four additional pumps maintained for fire protection.	Former owner: Bergen Plywood Corporation. Amount diverted does not include output for weekly fire pump tests.
168/15-19A1 (Sheet 5)	City of Crescent City	Myer Creek	Munic.	(*)	80*	Approp.	0.785 cfs	A-14522*	About 1912	Pump; 20-hp electric motor with 6-inch pipeline to service area.	Former owners: Mountain Power Company, Otto Meyers, Crescent City Water Co. Diversion of water right cancelled August 1959/16-190A. This diversion was discontinued upon completion of 178/16-190B. Diversion of water right revoked in December 1959.

\* See remarks  
-- Information not available  
For lettered footnotes, see last page of table

TABLE 5 (Continued)  
DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Location number and/or sheet number	Diversion name and/or owner	Source	Water use in 1958			Apparent water right			Indicated date of approval or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
SMITH RIVER PLAIN SUBUNIT (Continued)											
City of Crescent (Sheet 5)	City of Crescent	Elk Creek	Munic.	1,680 acre-feet	225	Approx.	0.5 cfs	A-1538	About 1921	Gravity small wood diversion situated with 50 feet of 2-inch pipe to treatment plant and booster pumps with 8-inch pipeline to service area.	Former owner: Mountain River Company, Ohio Water Public Utilities of California Corp., Crescent City Water Company, decreed supplemental supply diversion was discontinued upon completion of 170/14-1381 in February 1959.
City of Crescent (Sheet 5)	Perfection District Association	Tributary to Elk Creek	(*)	(*)	Not assess.		--	--	1921	Pump electric motor* with 2,700 feet of 2-, 3-, and 4-inch pipe to distribution system.	Used for watering fairgrounds, sprinkling roads, and miscellaneous construction purposes. 3-hp motor used until July 1958 and 7.8 hp thereafter.
City of Crescent (Sheet 5)	City of Crescent	Tributary to Elk Creek	Munic.	(*)	31 *	Approx.	0.557 cfs	A-1396a	1950	Pump: 7.5-hp electric motor with short pipe to filter and 8-inch pipeline to service area.	Former owner: Yoder and Reiners, Del Norte Milling Company, Crescent City Water Company. Diversion was terminated 160/14-2081. This diversion was discontinued upon completion of 170/14-1381 in February 1959.
West Coast Timber Company and Lund Manufacturing Co.	West Coast Timber Company and Lund Manufacturing Co.	Tributary to Elk Creek	Indust.	Lumber mill	17	Riparian	--	--	1947	Pump: 3-hp electric motor with short 3-inch pipeline to log pond.	Former owner: Sunset Lumber Company.
West Coast Timber Company and Lund Manufacturing Co.	West Coast Timber Company and Lund Manufacturing Co.	Tributary to Elk Creek	Indust.*	(*)	None	Approx.	0.26 cfs of storage	A-1547a	1947	Pump electric motor with short 3-inch pipeline to log pond.	Former owner: Sunset Lumber Company, Lund Manufacturing Co. Previously supplied 6-acre-foot loc. com.
West Coast Timber Company and Lund Manufacturing Co.	West Coast Timber Company and Lund Manufacturing Co.	Elk Creek	Indust.	Lumber mill	(*)	Approx.	0.42 cfs of storage	A-1500a	1951	Pump: 102-hp electric motor with 10.7 mile of 8-inch pipe to log pond.	Former owner: Castle Summit, Inc.
West Coast Timber Company and Lund Manufacturing Co.	West Coast Timber Company and Lund Manufacturing Co.	Elk Creek	Indust.	Lumber mill	50	(c)	--	--	1951	Pump: 3-hp electric motor with short 4-inch pipeline to log pond.	
Hagerman Corp.	Hagerman Corp.	Tributary to Elk River	Irrig.*	(*)	None	(c)	--	--	1958	Storage and pump: earth dam 12 feet high, 1,700 feet long, with 15-acre-foot reservoir, and pump directly connected to distribution stem.	Diversion dam and siphon system completed in December 1954. Used to water 150 acres of bel. Lumber Co. Club on farm near town in 1954.
City of Crescent (Sheet 5)	City of Crescent	Tributary to Elk River	Irrig.	(*)	84	Approx.	--	--	About 1921	Pump: 10-hp electric motor with direct connection to distribution system.	
City of Crescent (Sheet 5)	City of Crescent	Tributary to Elk River	Irrig.	(*)	59	Approx.	0.8 cfs	A-1382	1945	Pump: 1-hp electric motor with direct connection to distribution stem.	Previously supplied to city.

\* See remarks.  
\* Information not available  
for latered footnotes, see last page of table.

TABLE 5 (Continued)  
DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Location number and sheet number	Overseer name and/or owner	Source	Water use in 1958			Apparent water right			Indicated date of diversion or appropriation first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted acre-feet	Type	Amount	Reference			
SMITH RIVER PLAIN SUBUNIT (Continued)											
11 B & M											
17N/14-3H1 (Sheet 3)	Charles E. and John McNeill	Smith River	Irrig. Stock	110 acres by sprinkler 125 head	61	Alpitan	--	--	1916	Pump; 25-hp electric motor with direct connection to distributor system.	Former owners: Harry, Warren, Walter and Clarence Bailey.
17N/14-10L1 (Sheet 3)	Fresley D. Tryon	Tryon Creek	Irrig.	53 acres by sprinkler*	13	Alpitan	--	--	About 1945	Pump; 25-hp electric motor with direct connection to distribution system.	Former owner: Harold Mosley. Previously irrigated an additional 50 acres.
17N/14-11F1 (Sheet 3)	Fresley D. Tryon	Smith River	Irrig. Stock	65 acres by sprinkler 75 head	Not meas.	Alpitan	--	--	1916	Pump; 25-hp electric motor with short piping to distribution system.	Former owner: Henry Gilson.
17N/14-11F2 (Sheet 3)	Fresley D. Tryon	Smith River	Irrig.* Stock	(*) 75 head	Not meas.	Alpitan	--	--	1916	Pump; 25-hp electric motor with short piping to distribution system.	Previously irrigated 108 acres.
17N/14-11H1 (Sheet 3)	Pelican Bay Construction Service, Inc.	Smith River	Indust.	Washing gravel	120	Alpitan	--	--	1956	Pump; 15-hp electric motor with 0.1 mile of 5-inch pipe to area of use.	
17N/14-11H2 (Sheet 3)	Murray Tryon	Smith River	Irrig.	167 acres by sprinkler*	61	Alpitan	--	--	About 1945	Pump; 60-hp electric motor with distribution system which includes 4,500 feet of 8-inch pipe.	
17N/14-12H1 (Sheet 3)	Elmer Hoffman Margaret Macfield	Smith River	Irrig.	98 acres by sprinkler	48	Alpitan	0.58 cfs	A-1134ga	About 1950	Pump; 40-hp electric motor with direct connection to distribution system.	
17N/14-13H1 (Sheet 3)	City of Crescent City	Smith River	Munic.*	(*)	None	Alpitan	9.8 cfs	A-17756a	1958	Pump; two 100-hp electric motors with 8 miles of 10-, 12-, and 14-inch pipes; 100,000-gallon storage tank, and 100,000-gallon storage tank.	First used February 7, 1959 to serve City of Crescent City replacing 18N/14-13H1, -28H1, and -21C1.
17N/14-3J1 (Sheet 3)	Austin S. Hunter	Springs tributary to Lake Earl	Irrig.*	(*)	None	Alpitan	--	--	About 1950	Pump; 25-hp electric motor with direct connection to distribution system.	Previously irrigated 44 acres by sprinkler.
17N/14-3J2 (Sheet 3)	Charles M. Riley	Hosh Creek	Irrig. Stock	33 acres by sprinkler 30 head	11	Alpitan	--	--	About 1949	Pump; portable, 25-hp gasoline engine with direct connection to distribution system.	Portable pump location varies in vicinity of location indicated.
17N/14-3J3 (Sheet 3)	Robert K. and Hastings G. C. Robert H. and Bernice C. Bouman	Ritner Creek*	Irrig.	70 acres by sprinkler*	12	Alpitan	0.15 cfs 0.26 cfs 2 af storage	A-8873a A-11385a	1937	Gravity and pump; concrete dam 4 feet high, 20 feet long, and 4,000 feet of 6-inch pipe to distribution system.	Former owner: Andy E. Fieldin. Area irrigated by gravity and pump. Also known as Mitchell Creek by local residents.

\* See remarks.  
-- Information not available.  
For lettered footnotes, see last page of table.



TABLE 5 (Continued)  
DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Location number Sheet number	Overseer name and address	Source	Water use in 1958			Apparent water right			Indicated amount of diversion proportion first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted cfs-sec	Type	Amount	Reference			
SMITH RIVER PLAIN SUBUNIT (Continued)											
H. E. & K.											
188/14-2721 (Sheet 1)	Clara B. Morgan	Dalliah Creek	Irrig. Stock	14 acres by sprinkler	14	Riparian	--	1949	Pump, 20- and 7.5-hp gasoline engines with short 6-inch pipeline to distribution system.	7.5-hp pump not used in 1954.	
188/14-2721 (Sheet 1)	Clara B. Morgan	Dalliah Creek	Irrig. Stock	85 acres by sprinkler 65 head	66	Approp.	1.06 cfs	1945	Pump, 20-hp electric motor with direct connection to distribution system.		
188/14-2721 (Sheet 1)	Marvella H. Hanch	Dalliah Creek	Irrig.	12 acres by sprinkler*	6	Riparian	--	1958	Pump portable, 16-hp gasoline engine with direct connection to distribution system.	Area irrigated included supplemental pump also used at 188/14-2721.	
188/14-2721 (Sheet 1)	Marvella H. Hanch	Dalliah Creek	Irrig. Stock	88 acres / sprinkler* 600 head	82	Riparian	--	1946	Pump, 20-hp electric motor with direct connection to distribution system.	Residual supplemental supply from 188/14-2722 and -2721 water stock. Previously irrigated an additional 18 acres.	
188/14-2722 (Sheet 1)	Marvella H. Hanch	Tributary to Tillam Slough	Irrig.	34 acres by sprinkler and furrow	30*	Riparian	--	About 1938	Pump, 10-hp electric motor with direct connection to distribution system.	Portion of amount diverted supplemented 188/14-2722 and -2721.	
188/14-2721 (Sheet 1)	Marvella H. Hanch	Tributary to Tillam Slough	Irrig.	106 acres by sprinkler	124*	Riparian	--	1947	Pump, 25-hp electric motor with direct connection to distribution system.	Portion of amount diverted supplemented 188/14-2721.	
188/14-2721 (Sheet 1)	Robert A. Sargis, Sr.	Tributary to Smith River	Irrig. Stock	48 acres by sprinkler* 90 head	33	Riparian	--	1945	Pump, 7.5-hp electric motor with direct connection to distribution system.	Previously irrigated an additional 18 acres.	
188/14-2721 (Sheet 1)	Marvella H. Hanch	Tributary to Smith River	Irrig.	26 acres by sprinkler*	27	Riparian	--	1952	Pump portable, 16-hp gasoline engine with direct connection to sprinkler system.	Portable pump also used at 188/14-2722.	
SOUTH FORK SUBUNIT											
188/14-2721 (Sheet 1)	Alison and Ray L. Freeman	Jones Creek	Irrig. Stock	59 acres by sprinkler 10 head	Not meas.	Approp.	1.0 cfs	1954	Pump, 150-hp diesel engine with direct connection to distribution system.		
188/14-2721 (Sheet 1)	Collins Wellwood	Spring tributary to Jones Creek	Mining	Washing chromite ore	20	(c)	--	About 1938	Or flow, 0.5 mile of metal pipe to 500-gallon tank and short pipeline to ore-concentrating tables.		

\* See Remarks  
-- Information not available  
For lettered footnotes, see last page of table.



TABLE 5 (Continued)  
 DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN  
 SMITH RIVER HYDROGRAPHIC UNIT

Location number and plate sheet number	Diverion name and/or owner	Source	Water use in 1958			Apparent water right			Indicated date of operation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted acre-feet	Amount		Reference			
						Type	Amount				
H. B. & M.											
WILSON CREEK SUBUNIT											
(No diversions located in this subunit)											
WINCHUCK RIVER SUBUNIT											
186/14-521 (Sheet 1)	Ray W. and Mable H. Srebnick	Gilbert Creek	Irrig.	71 acres by sprinkler	27	Approp.	0.11 cfs	A-13775 <sup>a</sup>	1950	Pump; 25-hp electric motor with direct connection to distribution system.	Former owners: Chester and Mabel Nails.  Most of water diverted is exported out- side Smith River Hydrographic Unit to irrigate about 80 acres in the State of Oregon. Water right is filed with the State of Oregon.
186/14-541 (Sheet 1)	William D. and Mary J. Fisher	Gilbert Creek	Irrig.	69 acres by sprinkler	13	Approp.	0.08 cfs	A-12776 <sup>a</sup>	1948	Pump; 10-hp electric motor with direct connection to distribution system.	
186/14-531 (Sheet 1) (Export)*	M. L. DeMartin	Winchuck River	Irrig.	2 acres by sprinkler	* Not meas.	(*)	(*)	(*)	1947	Pump; 30-hp electric motor with direct connection to distribution system.	

\* See remarks.  
 a Refers to applications to appropriate water filed with State Water Rights Board.  
 b Del Norte County records.  
 c Insufficient information to determine type of water right.

of a diligent appropriator from the time of filing, and enabled him to prevail over a concurrent nonstatutory appropriator. In this report, reference to the "miner's inch" indicate the California statute miner's inch (1/40 cubic foot per second), the unit in common use in the Smith River area.

The determination of water rights under which the various diversions are made is based upon the best information available from the owner, from files of the State Water Rights Board, from official records, and from other sources. Although this information is believed to be accurate, it is emphasized that it is not based on sworn claims or testimony and should in no way be construed to represent a conclusive determination of water rights.

A detailed description of the diversion systems, including dams, pumps, and main conduits, as well as any special features, is included in Table 5. The diversions are also classified as gravity, pump, and storage, according to the following definitions:

Gravity diversion - A system in which water is taken from its natural course at a diversion structure and conveyed by gravity through a canal or pipeline to the area of use. Such a diversion may have a reservoir on the stream but the capacity is small compared with the amount of water diverted and provides no significant carry-over storage from winter to summer.

Pump diversion - A system in which water is pumped from its natural course through a pipeline to the area of use or to a gravity conduit located at a higher elevation.

Storage diversion - A system consisting of or including a surface reservoir having significant carryover storage within each season or from season to season.

Systems not exclusively of one of these basic types are listed as combinations of those types which best describe them.

The "remarks" column contains such information as the names of former owners, known changes of ownership after 1958, and further details explaining entries in the other columns.

Information about two diversions, too detailed to be included in Table 5, is given in Appendix D. Most of this information relates to history, ownership, and water rights.

#### Records of Surface Water Diversions

Continuous or periodic measurements of the quantities of surface water diverted by 32 of the 62 diversions in the unit were made by the Department of Water Resources in 1958. The total amount of water diverted at the 32 diversions for which measurements are reported was about 4,550 acre-feet, as summarized by primary uses in Table 6. Detailed results of the measurement program are reported in Table 7. Only quantities which were based on actual measurements or reliable estimates are included. Where feasible, measurements of each diversion were made at a location above the area of first use as close to the diversion intake as possible, but below any regulatory spill. Exceptions are noted in Table 7.

Determinations of diverted quantities were made primarily by testing of pumps. These observations were supplemented by interviews of water users to obtain data on possible abrupt changes in operation between readings.

The quantities in Table 7 are based on various methods listed in the column, "Method of observation and calculations." Where the monthly data were sufficiently reliable, quantities are shown. When the diversion during a month is known to have been zero, it is so indicated. The data, however, were sometimes not sufficiently detailed to justify a breakdown into monthly quantities. These cases are indicated by --NR--. Data which were incomplete or uncertain are designated as estimates. Notations regarding the extent of irrigation period indicate the overall period of

TABLE 6

SUMMARY OF USE AND MEASUREMENTS  
OF SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT  
IN 1958

Total number of surface water diversions	: Number of : diversions : active : in 1958 :	Purpose	: Number of : measured : diversions :	Measured quantity of water diverted (in acre-feet)
31	24	irrigation and/or stock- watering	21	790
11	10	municipal and/ or domestic	3	620
9	7	industrial	7	3,120
5	5	hydroelec- tric power	0	--
3	2	recreation, and/or fish culture	0	--
2	2	mining	1	20
1	1	export for irrigation outside the unit	0	--
—	—		—	—
62	52		32	4,550

irrigation, but not necessarily that daily or continuous irrigation was practiced through the period.

#### Index to Surface Water Diversions

For convenience in locating information regarding specific diversions, an alphabetical index to diversion owners and diversion names is provided in Table 8 at the end of this chapter. For each diversion, this table indicates the subunit, the sheet number of Plate 2, and the page on which pertinent data appear.

#### Imports and Exports

There are no imports of surface water into the Smith River Hydrographic Unit. However, most of the water from diversion 19N/1W-33DL is exported from the unit. This diversion, owned by Mr. M. L. DeMartin, is located on the Winchuck River some 30 feet south of the California-Oregon state line, and diverts under a water right obtained in the State of Oregon. The water is used to irrigate about 80 acres, some 78 of which are located in the State of Oregon.

#### Consumptive Use

In the Smith River Hydrographic Unit, virtually all of the consumptive use of applied water is for irrigated agriculture, lumber mills, and urban use. Consumptive use of water is defined as water consumed by vegetative growth in transpiration and building of plant tissue, and by water evaporated from adjacent soil, from water surface, and from foliage. It also includes water similarly consumed and evaporated by urban and non-vegetative types of land use. The consumptive use of water for hydroelectric power generation, fish culture, and mining operations is negligible, consisting primarily of evaporation from canal and pond surfaces.

TABLE 7  
MONTHLY RECORDS OF SURFACE WATER DIVERSIONS  
SMITH RIVER HYDROGRAPHIC UNIT  
1958

[illegible]

0      see remarks;  
1      No removed for period indicated.  
2      version estimated for period indicated

TABLE 7 (Continued)  
MONTHLY RECORDS OF SURFACE WATER DIVERSIONS  
SMITH RIVER HYDROGRAPHIC UNIT  
1958

Location number	Diversion name or owner	Use	Point of measurement or structure	Method of observation and collection	Amount diverted, in acre-feet												Remarks	
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec		Total
SMITH RIVER PLAIN SUBUNIT (Continued)																		
8 B & H																		
170/14-212	Charles M. Westlake	Irrigation 6/13/58 - 7/16/58	At pump	Pump test and power records	0	0	0	0	3	14	26	24	14	3	0	0	84	
170/14-211	Leslie A. Herlihy and Lewis Birch	Irrigation 6/17/58 - 9/1/58	At pump	Pump test and hours of operation	0	0	0	0	0	10	21	27	6	0	0	0	59	
170/14-101	Charles L. and Helen I. McCrellin	Irrigation and stockwatering 6/13/58 - 9/1/58	At pump	Pump test and power records	0	0	0	0	0	12	23	22	4	0	0	0	61	
170/14-102	Fresley D. Tryon	Irrigation 7/10/58 - 9/24/58	At pump	Pump test and power records	0	0	0	0	0	0	6	4	1	0	0	0	12	
170/14-1101	Pollock Bay Construction Services, Inc.	Industrial 4/1/58 - 12/11/58	At pump	Estimated	0	0	0	0	0	0	0	0	0	0	0	0	0	Part of amount diverted in months of June and July is estimated.
170/14-1102	Murray Tryon	Irrigation 7/10/58 - 9/1/58	At pump	Pump test and power records	0	0	0	0	0	0	17	36	8	0	0	0	61	
170/14-1201	Elmer Westlake	Irrigation 7/1/58 - 10/6/58	At pump	Pump test, power records, and hours of operation	0	0	0	0	2	9	14	14	8	1	0	0	48	
170/14-1471	Charles W. Riley	Irrigation and stockwatering 8/2/58 - 9/2/58	At pump	Pump test and hours of operation	0	0	0	0	2	3	3	3	0	0	0	0	11	
180/14-2102	Robert K. and Elizabeth C. Robert H. and Bernice C. Stumert	Irrigation 5/11/58 - 7/2/58	At pump	Sprinkler ratings and hours of operation	0	0	0	0	4	4	4	0	0	0	0	0	12	
180/14-702	Clara B. Bregan	Irrigation 5/8/58 - 8/24/58	At pump	Pump test and hours of operation	0	0	0	0	3	5*	3*	3	0	0	0	0	14	
180/14-7201	Clara M. Heyan	Irrigation and stockwatering 4/24/58 - 10/23/58	At pump	Pump test and power records	0	0	0	0	2	13	32	11	6	2	0	0	66	
180/14-7202	Reservation Ranch	Irrigation	At pump	Pump test and estimated hours of operation	0	0	0	0	1	1	2	1	1	0	0	0	6	
180/14-7701	Reservation Ranch	Irrigation 4/23/58 - 1/16/59	At pump	Pump test and power records	0	0	0	0	0	8	30	27	13	4	0	0	82	
180/14-7702	Reservation Ranch	Irrigation and stockwatering 5/7/58 - 9/24/58	At pump	Pump test and power records	0	0	0	0	2	2	10	12	4	0	0	0	30	
180/14-7711	Reservation Ranch	Irrigation and stockwatering 5/13/58 - 9/24/58	At pump	Pump test and power records	0	0	0	0	4	15	50	12	0	0	0	0	124	

\* See remarks.  
NR - No record for period indicated.  
- - - - - Diversion estimated for period indicated.

TABLE 7 (Continued)  
MONTHLY RECORDS OF SURFACE WATER DIVERSIONS  
SMITH RIVER HYDROGRAPHIC UNIT  
1958

Location number	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks	
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec		Total
SMITH RIVER PLAIN SUBUNIT (Continued)																		
14-001	Robert A. and Mrs. J. W. Smith	Irrigation and stockwatering 5/10/58 - 6/1/58	At pump	Pump test and power records	0	0	0	0	0	1	5	14	10	3	1	0	33	
14-001	Government ranch	Irrigation	At pump	Pump test and hours of operation	0	0	0	0	0	3	5	10	9	3	0	0	27	
SOUTH FORK SUBUNIT																		
14-001	Carlina W. Linden	Mining 1/1/58 - 4/3/58	Point of use	Estimated	0	0	0	0	0	0	0	0	0	0	0	0	0	Reported amount diverted is based on estimated amount diverted through the system above this point.
WILSON CREEK SUBUNIT																		
(No diversions located in this subunit)																		
WINCHUCK RIVER SUBUNIT																		
14-001	Ray W. and Mrs. H. C. Smith	Irrigation 5/1/58 - 6/1/58	At pump	Pump test and power records	1	0	0	0	1	5	9	6	4	2	0	0	27	
14-001	W. L. Smith	Irrigation 5/1/58 - 6/1/58	At pump	Pump test and hours of operation	0	0	0	0	2	1	6	3	1	0	0	0	13	

See comments.  
\* \* \* \* \*  
Diversion estimated for period indicated.



The total consumptive use of applied water, in the Smith River Hydrographic Unit, from both surface and ground sources, is estimated to have been about 4,000 acre-feet in 1958. Of this total, about 1,600 acre-feet were consumed by irrigation, 1,000 by municipal and domestic uses, and the remainder by lumber mill operations. Consumptive use of applied water for other purposes was negligible.

TABLE 8  
INDEX TO SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Diversion name and/or owner	Location number	Subunit	References	
			Plate sheet	Text and appendices page nos
Aller Placer Mines	19N/5E-34G1	Illinois River	2	29, C-13
Brogan, Clara B.	18N/1W-27C1	Smith River Plain	1	34, 41, 54
	18N/1W-27D1	Smith River Plain	1	34, 41, 54, C-12
Cal-Ore Veneer, Inc.	16N/1W-9L1	Smith River Plain	5	31, 40
	16N/1W-9P1	Smith River Plain	5	31, C-10
Coughlan, Charles R. Weller, Nina G.	17N/2E-20R1 see also Upper Field Gulch Ditch	Middle Fork	3	24, 29, C-13, D-3
Crescent City, City of	16N/1W-19J1	Smith River Plain	5	24, 31, 40
	16N/1W-20K1	Smith River Plain	5	24, 32, 40, C-13
	16N/1W-21C1	Smith River Plain	5	24, 32, 40, C-10
	17N/1W-13B1	Smith River Plain	3	24, 26, 33, C-14
Cunningham, Ken D.	16N/1W-10A1	Smith River Plain	5	31, 40, 53
DeMartin, M. L.	19N/1W-33D1	Winchuck River	1	35, 39, 55
Dillman, Charles E.	16N/1W-8Q1	Smith River Plain	5	31, 40, 53
Dixon, Freda	see Douglas Park Water System			
Douglas Park Water System Dixon, Freda Garrison, Bertha Giacomini, Alvin and Dorothy Gooch, Harry, et ux. Powell, Tracy and Pauline Rodriguez, Ernest Savage, W. A., et ux. Shicara, George and Gerry Sisley, Frank and Claire Welch, Jack and Ann	16N/1E-16A1	Smith River Plain	5	31, C-13
Dutton, A. C., Lumber Corporation	16N/1W-28B1	Smith River Plain	5	32, 40, C-10
Endert, B. C.	see Upper Field Gulch Ditch			
English, C. L. Short, Arlet	16N/1W-3L2	Smith River Plain	5	31, 40, 53, C-14
Fisher, William D. and Mary J.	18N/1W-5H1	Winchuck River	1	35, 42, 55, C-11
Fletcher, E. W. Tuttle, Charles	17N/3E-8R1	Middle Fork	4	29, C-13
Forty-first District Agricultural Association	16N/1W-20R1	Smith River Plain	5	32
Freeman, Wilson and May L.	15N/2E-13Q1	South Fork	7	34, 54, C-14
Garrison, Bertha	see Douglas Park Water System			
Gasquet Mutual Water Company	17N/2E-17G1	Middle Fork	3	24, 29, C-13
Giacomini, Alvin and Dorothy	see Douglas Park Water System			

TABLE 8 (Continued)  
INDEX TO SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Diversion name and/or owner	Location number	Subunit	References	
			Plate 2 sheet no.	Text and appendixes page nos
Gooch, Harry, et ux.	see Douglas Park Water System			
Hastings, Robert K. and Elizabeth C. Stanhurst, Robert H. and Bernice C.	18N/1W-21R1	Smith River Plain	1	33, 41, 54, C-12
Huffman, C. F. and Marie	15N/1E-6B1	Mill Creek	7	30, 53, C-10
	15N/1E-6P1	Mill Creek	7	30, 53, C-10
	15N/1E-7B1	Mill Creek	7	30, 53, C-10
	15N/1E-7G1	Mill Creek	7	30, 53, C-10
	16N/1E-31R1	Mill Creek	5	30, 53
	16N/1W-3L1	Smith River Plain	5	31, 53
Huffman, Elinor Wakefield, Margaret	17N/1W-12M1	Smith River Plain	3	33, 41, 54, C-10
Hunter, Austin S.	17N/1W-34D1	Smith River Plain	3	33, 54
Hussey Ranch Corporation	17N/1E-30J1	Smith River Plain	3	32
Johnston, Elmer E. and Pearl A.	17N/4E-5F1	Middle Fork	4	29, C-11
McClendon, Collins	15N/2E-28R1	South Fork	7	34, 42
McNamara and Peepe Lumber Company	16N/1W-28C1	Smith River Plain	5	32, 40
Medford Veneer and Plywood Corp.	16N/1W-14H1	Smith River Plain	5	31, 40, C-10
Moore, Robert H.	18N/2E-5J1	North Fork	1	30, C-10
Northern California Plywood, Inc.	16N/1W-18C1	Smith River Plain	5	31, 40, C-10
Nunneley, Hollis J. and Jean	see Trout Haven			
Owen, William K.	18N/1W-23G1	Rowdy Creek	1	24, 30
	18N/1W-23G2	Rowdy Creek	1	24, 30
Pelican Bay Construction Services, Inc.	17N/1W-11H1	Smith River Plain	3	33, 41
Powell, Tracy and Pauline	see Douglas Park Water System			
Raymond, Howard E. and Minnie	17N/3E-9M1	Middle Fork	4	29, C-14
Rellim Redwood Company	see Huffman, C. F. and Marie, diversions in Mill Creek Subunit			
Reservation Ranch	18N/1W-27D2	Smith River Plain	1	34, 41, 54
	18N/1W-27F1	Smith River Plain	1	34, 41, 54
	18N/1W-27F2	Smith River Plain	1	34, 41, 54
	18N/1W-27L1	Smith River Plain	1	34, 41, 54
	18N/1W-28K1	Smith River Plain	1	34, 42, 54
Riley, Charles W.	17N/1W-34P1	Smith River Plain	3	33, 41, 54

TABLE 8 (Continued)  
INDEX TO SURFACE WATER DIVERSIONS IN  
SMITH RIVER HYDROGRAPHIC UNIT

Diversion name and/or owner	Location number	Subunit	References	
			Plate 2 sheet no.	Text and appendices page nos.
Rodriguez, Ernest	see Douglas Park Water System			
Sarina, Robert G., Sr.	18N/1W-27Q1	Smith River Plain	1	34, 42, 54
Savage, W. A., et ux.	see Douglas Park Water System			
Shicara, George and Gerry	see Douglas Park Water System			
Short, Arlet	see English, C. L.			
Sisley, Frank and Claire	see Douglas Park Water System			
Standard Veneer and Timber Co.	16N/1W-9M1	Smith River Plain	5	31
Stanhurst, Robert H. and Bernice C.	see Hastings, Robert K.			
Struebing, Ray W. and Mable H.	18N/1W-5G1	Winchuck River	1	35, 42, 55, C-11
Trout Raven Nunnely, Hollis J. and Jean	17N/3E-3R1	Middle Fork	4	26, 29, C-11
Tryon, Murray	17N/1W-11H2	Smith River Plain	3	33, 41, 54
Tryon, Presley D.	17N/1W-10G1	Smith River Plain	3	33, 41, 54
	17N/1W-11F1	Smith River Plain	3	33, 54
	17N/1W-11F2	Smith River Plain	3	33, 54
Tuttle, Charles	see Fletcher, E. W.			
Ulrich, Lester A., Martha S. and Lewis	17N/1W-2L1	Smith River Plain	3	32, 41, 53, C-11
Upper Field Gulch Ditch Coughlan, Charles R. Endert, B. C. Weller, Nina G.	17N/2E-20R2	Middle Fork	3	24, 29, C-13, D-4
Wakefield, Margaret	see Huffman, Elinor			
Welch, Jack and Ann	see Douglas Park Water System			
Weller, Nina G.	see Coughlan, Charles R. and Upper Field Gulch Ditch			
West Coast Veneer Company and Lund Plywood and Manufacturing Company	16N/1W-21E1	Smith River Plain	4	32, 40
	16N/1W-21E2	Smith River Plain	5	32, C-14
Westbrook, Clarence W.	17N/1W-2E1	Smith River Plain	3	32, 41, 53
Wetherell, Charles E. and Elen E.	17N/1W-3H1	Smith River Plain	3	33, 41, 54
Wieting, Carl A.	18N/4E-2C1	Illinois River	2	29, C-14

### CHAPTER III. LAND USE

The results of a survey of water uses and water facilities in the Smith River Hydrographic Unit were presented in Chapter II. In this chapter are reported the results of a survey of present land uses as related to water use. Also included is a brief summary of historical conditions. A thorough knowledge of the nature and extent of land and water uses under existing conditions within this hydrographic unit is one of the primary requisites in evaluating future water requirements within the unit.

#### Historical Land Use

As previously noted, the beginning of the development of the Smith River Hydrographic Unit took place in the 1850's. Of the three broad groups of land use--agricultural, urban, and recreational--agricultural and urban uses began over 100 years ago. It was some 30 or 40 years later that certain areas were developed specifically for recreation.

Agricultural development on the Smith River Plain began during its original settlement period in the 1850's, and very soon became a major activity. After a somewhat experimental period of about 25 years, crop patterns remained fairly constant, except for gradual growth, until the present. To illustrate conditions in the early years, about 2,200 acres of land were under cultivation in 1857, of which some 1,700 acres were planted to small grains. As dairying started to develop in about 1875, pasture began to replace grain as the predominant agricultural crop. The resulting crop pattern is represented by 1958 conditions, when some 80 percent of the agricultural land was devoted to pasture and only 7 percent to grain.

Two other significant changes in the agricultural picture have taken place since 1940. These are the introduction of irrigation, and the

commercial production of bulbs and flowers. In 1940 there were only two irrigated farms, but by 1950 there were 35. The total area irrigated in 1949 was about 1,900 acres. By 1958 about 3,600 acres, or 45 percent of the cultivated lands, were irrigated. During the 1950's, the bulb and flower industry expanded rapidly, and the income from these products has grown to equal that from all other agricultural activities, although in 1958 these crops occupied only about 5 percent of the total cultivated area within the unit.

From the time of its founding, Crescent City has been the principal urban center, serving an area extending well beyond the limits of the hydrographic unit. Smaller towns within the unit have developed more slowly. The post-World War II period has, with its general trend to suburbanization, seen a rapid expansion of the scattered small residential communities. The industrial uses of land are mainly for sawmills and related activities. Though present in the early years, these uses have increased sharply in the last decade. The population figures given previously indicate this increase of urban land use over the years.

Recreational activities, mainly fishing and hunting, have been popular in the Smith River area since its early history. For years the natural terrain served the needs, but about 1890 certain specific areas became popular for their recreational value. The building of summer homes, resorts, and improved campgrounds began about this time. In recent years, several areas, such as parts of Jedediah Smith Redwoods State Park, have been developed for intensive recreational use.

#### Present Land Use

A detailed survey of land uses in the Smith River Hydrographic Unit was conducted in 1958 as part of this investigation. The land uses mapped

in this survey as related to water use fall into five categories: irrigated lands, dry-farmed lands, urban lands, recreational lands, and naturally high water table lands, such as natural meadowlands and marshes. Lands not falling into any of these five categories were mapped as native vegetation. The various types of land use mapped in 1958 are delineated on Sheets 1 through 10 of Plate 2. The acreages of land uses within each subunit are presented in Table 9. The values represent gross acreages, including nonwater-service areas such as roads, ditches, building and storage areas, and miscellaneous rights-of-way, which occur within the mapped areas.

#### Methods and Procedures

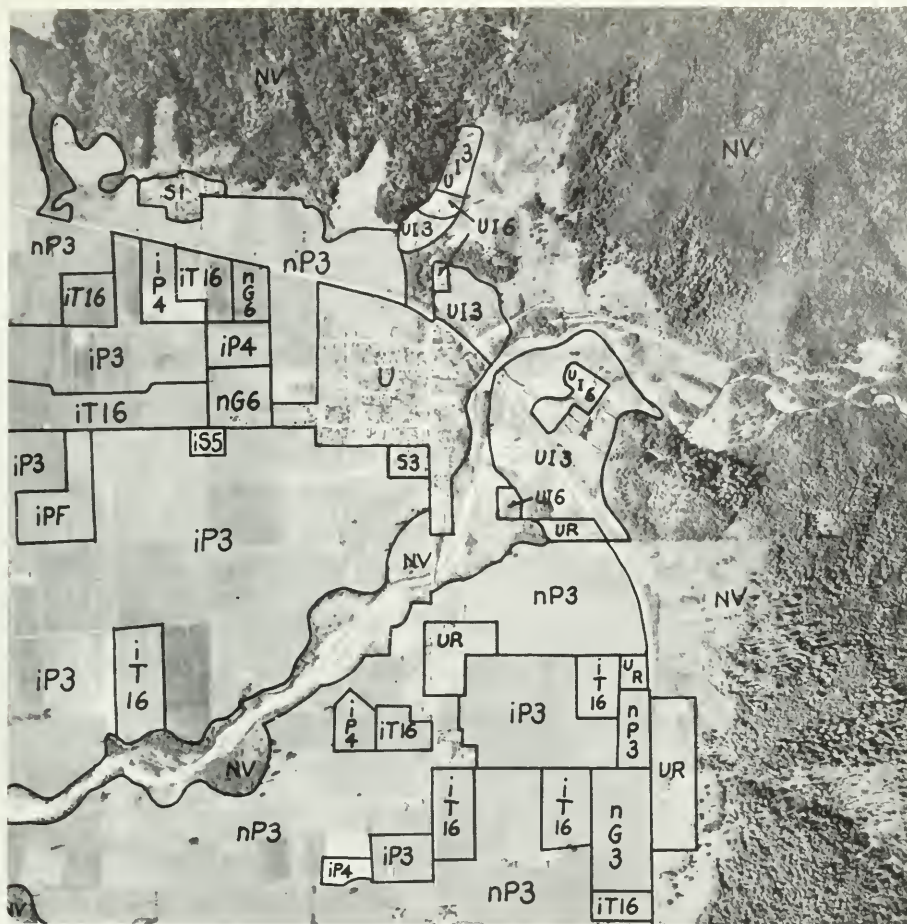
The land use survey and the location of surface water diversions were accomplished by relating field observations to aerial photographs having a scale of about 1:20,000. Stereoscopes were used to assist in the field mapping procedure. As each point of diversion was located, it was plotted on the aerial photograph and as the use and extent of each parcel of land was determined, these were delineated on the aerial photograph. The hydrographic unit was traversed by automobiles as completely as roads and terrain permitted. When necessary because of poor accessibility, inspections were made on foot. An example of an aerial photograph with land use data delineated on it is shown on Page 51.

After completion of the field mapping, the data delineated on the photographs were transferred to copies of U. S. Geological Survey quadrangle maps reproduced at a scale of 1:24,000. This procedure was necessary to bring the delineated areas to a common scale for accurate determination of acreages, since the scale of the aerial photographs utilized varied widely. A series of these maps, showing all diversions and the fields associated

TABLE 9  
LAND USE IN  
SMITH RIVER HYDROGRAPHIC UNIT, 1958  
(In acres)

Subunit and County	Irrigated lands	Naturally water table lands		Dry-formed lands	Urban lands	Recreational lands			
		Meadowlands	high lands			Residential	Commercial	Camp sites	Parks
Illinois River	0	20	0	0	0	0	10	20	0
Middle Fork	0	0	0	10	190	30	20	50	0
Mill Creek	80	0	0	0	0	0	0	0	5,300
North Fork	0	0	0	0	0	0	0	0	0
Rowdy Creek	0	0	0	0	60	0	0	0	0
Smith River Plain	3,340	3,850	360	4,370	4,160	20	10	0	6,660
South Fork	40	10	0	0	0	10	10	0	0
Wilson Creek	0	0	0	10	30	0	0	0	3,530
Winchuck River	<u>150</u>	<u>0</u>	<u>0</u>	<u>100</u>	<u>130</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>10</u>
Total	3,610	3,880	360	4,490	4,570	60	50	70	15,500





Example of Land Use Delineated on Aerial Photograph

Symbols used on this photograph

AGRICULTURAL LANDS

Irrigated lands

iP3 - mixed pasture  
iP4 - native pasture  
iT16 - flowers and nursery  
iPF - pasture, fallow

Dry-farmed lands

nP3 - mixed pasture  
nG3 - oats  
nG6 - mixed hay and grain

URBAN LANDS

UI3 - storage  
UI6 - sawmills  
UR - residential  
U - multiple use areas

OTHER LANDS

NV - native vegetation  
St - farmsteads  
S3 - dairies  
iS5 - cemeteries

with each irrigation diversion, was colored according to the land use categories, and then reviewed by local parties concerned. These work maps were then used in the preparation of Plate 2.

Another series of these maps was used in computing the acreages of the land uses. Each delineated area on these maps was manually cut out and carefully weighed on an analytical balance. These weights were converted to acreages, using ratios determined for each of the individual maps. This method has proven to be a very expedient and accurate means of area determination where a large number of small parcels are involved.

### Irrigated Lands

Irrigated lands, as designated in this report, include all agricultural lands which receive water artificially applied. Acreages of irrigated lands are reported in Table 10 by surface water diversion and by subunits, showing the crops grown. The lands on which ground water was used, as well as those receiving both surface and ground water, were so noted. These irrigated lands were segregated into pasture, truck crops, and idle and fallow irrigated lands. Pasture was further subdivided into "mixed" and "native." Idle irrigated lands are those lands which were not irrigated in the year of survey, but which had been irrigated within the preceding three years. Fallow irrigated lands are those cultivated lands which may have been irrigated during the year of survey, but which at the time of survey were only tilled and not planted to a crop. Of the 3,600 acres of irrigated lands mapped in 1958, 78 percent were in pasture-type crops; 11 percent were in truck crops, mainly bulbs and flowers; and the remainder was composed of idle and fallow lands.

The irrigated lands were identified on the work maps by diversion service area and by crops irrigated, but on Plate 2 they are grouped into just two categories: (1) those lands which received a full irrigation during

TABLE 10  
IRRIGATED LANDS IN  
SMITH RIVER HYDROGRAPHIC UNIT  
1958 (in acres)

Location number	Diversion owner	Pasture		Bulbs and flowers	Total lands irrigated	Irrigated idle or follow <sup>o</sup>	Total
		Mixed	Notive				
<u>H B &amp; M</u>							
<u>ILLINOIS RIVER AND MIDDLE FORK SUBUNITS</u>							
(No diversions located in these subunits)							
<u>MILL CREEK SUBUNIT</u>							
15N/1E-6B1	C. F. and Marie Huffman				0	9	9
15N/1E-6P1	C. F. and Marie Huffman				0	3	3
15N/1E-7B1	C. F. and Marie Huffman				0	14	14
15N/1E-7G1	C. F. and Marie Huffman				0	16	16
16N/1E-31R1	C. F. and Marie Huffman	—	—	—	0	36	36
Total Mill Creek Subunit		0	0	0	0	78	78
<u>NORTH FORK AND ROWDY CREEK SUBUNITS</u>							
(No diversions located in these subunits)							
<u>SMITH RIVER PLAIN SUBUNIT</u>							
16N/1W-3L1	C. F. and Marie Huffman				0	43	43
16N/1W-3L2	C. L. English and Arlet Short	10		14	24		24
16N/1W-8Q1	Charles E. Dillman	14			14		14
16N/1W-10A1	Ken D. Cunningham	27			27		27
17N/1W-2E1	Clarence W. Westbrook	146			146		146
17N/1W-2L1	Lester A., Martha S., and Lewis Ulrich	102			102	11	113

<sup>o</sup>For lettered footnotes, see last page of table.

1958 (in acres)

For lettered footnotes, see last page of table.

TABLE 10 (Continued)  
IRRIGATED LANDS IN  
SMITH RIVER HYDROGRAPHIC UNIT

1958 (in acres)

Location number	Odiversion owner	Pasture		Bulbs and flowers	Total lands irrigated	Irrigated idle or fallow <sup>a</sup>	Total
		Mixed	Native				
<u>H B &amp; M</u>		<u>WILSON CREEK SUBUNIT</u>					
		(No diversions located in this subunit)					
		<u>WINCHUCK RIVER SUBUNIT</u>					
18N/1W-5G1	Ray W. and Mable H. Struebing		48	23	71		71
18N/1W-5H1	William D. and Mary J. Fisher	32	22	15	69		69
19N/1W-33D1	M. L. DeMartin	2			2		2
Lands irrigated by ground water		<u>0</u>	<u>0</u>	<u>12</u>	<u>12</u>	<u>0</u>	<u>12</u>
Total Winchuck River Subunit		34	70	50	154	0	154
		<u>SUMMARY</u>					
Lands irrigated by surface water		1,195	144	178	1,517 <sup>c</sup>	372	1,889 <sup>c</sup>
Lands irrigated by ground water		1,422 <sup>b</sup>	49	222 <sup>d</sup>	1,693	32	1,725
TOTAL SMITH RIVER HYDROGRAPHIC UNIT		2,617	193	400 <sup>d</sup>	3,210	404	3,614

a - Lands ordinarily irrigated, but idle or fallow in 1958.

b - Includes 41 acres of alfalfa.

c - 73 acres received supplemental supply from ground water.

d - Includes 8 acres of other truck crops.

the year of survey, and (2) those lands usually irrigated but which were idle or fallow in 1958. In most hydrographic units, a third category is usually present, namely, those lands which received only a partial irrigation because of insufficient water supply. However, in 1958 no such condition was found in the Smith River Hydrographic Unit.

#### Naturally High Water Table Lands

In addition to the lands which receive applied water as described above, there are lands supporting vegetation which utilize water from a naturally high water table, such as mountain meadows or lands adjacent to lakes and streams. These are shown on Plate 2 as "naturally irrigated meadowlands" and "marshes and swamps" and are listed in Table 9 as "meadowlands" and "marsh."

#### Dry-farmed Lands

Dry-farmed lands are those lands normally planted to a crop but which do not receive applied water. This category includes all lands so farmed, even if they were "idle" or "fallow" during the year of survey. Dry-farmed lands are called "idle" if entirely uncultivated in the year of survey, and "fallow" if tilled but without a crop. Lands which had been idle for more than three years and appeared to have reverted to "native vegetation" were so mapped.

It should be noted that the term "dry-farmed" as used herein refers to the farming practice on these lands and not to a lack of soil moisture.

Since noncultivated rangelands are usually indistinguishable from lands with native cover not used for grazing purposes, both types are included in "native vegetation." Water use in both cases is essentially the same and is dependent upon precipitation.



Grazing  
Dairy Herd  
on  
Smith River  
Plain



Easter  
Lily Field  
along  
Del Norte  
Coast



### Urban Lands

Urban lands include the total areas of cities, towns, small communities, industrial plots, and military reservations which are large enough to be delineated. Also included are parks, golf courses, racetracks, and cemeteries within or near urban areas. The acreages represent gross delineations, including streets and vacant lots, and are therefore not necessarily fully developed at the present time. In this survey the boundaries of urban communities were delineated to include all lands with a density of one house or more per two acres. Military reservations are included in their entirety, regardless of the extent of development.

### Recreational Lands

Recreational lands were mapped on aerial photographs in the field in four categories: (1) residential, (2) commercial, (3) camp and trailer sites, and (4) parks. Recreational residential lands include permanent and summer home tracts within primarily recreational areas. The estimated density of homes per acre was also indicated. Recreational commercial lands include those containing motels, resorts, hotels, stores, restaurants, and similar commercial establishments in primarily recreational areas. Lands mapped in the camp and trailer sites category include those areas so used within primarily recreational areas outside the boundaries of parks. The entire area within the boundaries of parks was included in the parks category, without regard to the extent of development thereon. Obviously, nearly all of the mountainous, seashore, and water surface areas are suitable for some use, such as hunting, fishing, hiking, picnicking, and other recreational activities of this nature. For the purpose of this land use survey, however, consideration is given only to those lands where some type of development requiring water service occurs, except in the case of parks.

The recreational lands are tabulated by the above four categories in Table 9. However, all recreational lands are combined into one group on Plate 2. As mentioned above, in some cases the areas delineated and tabulated are not necessarily fully developed. Designated recreational areas such as Jedediah Smith Redwoods State Park and military reservations are the most notable examples of this.

#### Native Vegetation

Lands which are essentially in a native state, and not included in any of the above categories, as well as scattered residences and other isolated uses too small to be delineated, were mapped as "native vegetation." However, in addition to the lands so mapped, the total acreage reported in this native vegetation category includes lands which were mapped as water surface and farm building areas, including dairies, feed lots, etc. The total of all these lands was some 466,000 acres or about 94 percent of the Smith River Hydrographic Unit in 1958. Most of these lands, even in their native state, are used for commercial timber production, livestock range, and recreational activities such as fishing, hunting, hiking, and picnicking.



## CHAPTER IV. LAND CLASSIFICATION

Calculations of future water requirements will be based in a large part on a classification of lands with regard to their potential for irrigated agriculture and recreational development. The results of such a land classification conducted in the Smith River Hydrographic Unit are presented in this chapter.

Lands were not classified in this survey with respect to their potential for urban development. The use of lands for urban purposes is closely related to population at any given time, and it is planned to defer designation of these lands until estimates of population and related economic studies are made in connection with determinations of future water requirements.

The former Division of Water Resources made a reconnaissance classification of lands of the State which was reported in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements of California," June 1955. In that report, the area of the Smith River Hydrographic Unit is contained in the "Del Norte" and a part of "Rogue River" units. The data on agricultural lands reported herein are in considerably greater detail than the information in Bulletin No. 2. This bulletin also includes additional data on classification of recreational lands not contained in Bulletin No. 2.

### Methods and Procedures

The general methods and procedures used in field mapping and tabulation of information were essentially the same as those described for the land use survey in Chapter III. An example of land classification delineations on an aerial photograph is shown on page 66.

The standards used in the classification of lands are given in detail in Table 11.

TABLE 11

## LAND CLASSIFICATION STANDARDS

Land Class: Symbol :	Characteristics
<u>Irrigable Lands</u>	
V -	These lands are level or slightly sloping and vary from smooth to hummocky or gently undulating relief. The maximum allowable slope is 6 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are allowed. The soils have medium to deep effective root zones, are permeable throughout, and free of salinity, alkalinity, rock, or other conditions limiting crop adaptability of the land. These lands are suitable for all climatically adapted crops.
H -	These are lands with greater slope and/or relief than those of the V class. They vary from smooth to moderately rolling or undulating relief. The maximum allowable slope is 20 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are allowed. The soils are permeable, with medium to deep effective root zones, and are suitable for the production of all climatically adapted crops. The only limitation is that imposed by topographic conditions.
M -	These are lands with greater slope and/or relief than those of the H class. They vary from smooth to steeply rolling or undulating relief. The maximum allowable slope is 30 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are allowed. The soils are permeable, with medium to deep effective root zones, and are suitable for the production of all climatically adapted crops. The only limitation is that imposed by topographic conditions.
Any variation in the foregoing, as defined, is indicated by use of one or more of the following symbols:	
w -	Indicates the presence of a high water table, which in effect limits the present crop adaptability of these lands to pasture crops. Drainage and a change in irrigation practice would be required to affect the crop adaptability.
s -	Indicates the presence of an excess of soluble salts, or exchangeable sodium in slight amounts, which limits the present adaptability of these lands to crops tolerant to such conditions. The presence of salts within the soil generally indicates poor drainage and a medium to high water table. Reclamation of these lands will involve drainage and the application of small amounts of

TABLE 11 (Continued)

## LAND CLASSIFICATION STANDARDS

Land Class: Symbol :	Characteristics
	amendments and some additional water over and above crop requirements in order to leach out the harmful salts.
ss -	Indicates the presence of an excess of soluble salts or exchangeable sodium in sufficient quantity to require the application of moderate amounts of amendments and some additional water over and above crop requirements in order to effect reclamation.
h -	Indicates very heavy textures, which make these lands best suited for production of shallow-rooted crops.
l -	Indicates fairly coarse textures and low moisture-holding capacities, which in general make these lands unsuited for the production of shallow-rooted crops because of the frequency of irrigations required to supply the water needs of such crops.
p -	Indicates shallow depth of the effective root zone, which limits use of these lands to shallow-rooted crops.
r -	Indicates the presence of rock on the surface or within the plow zone in sufficient quantity to prevent use of the land for cultivated crops.

Urban Lands

- UD - The total area of cities, towns, and small communities presently used for residential, commercial, recreational and industrial purposes.

Recreational Lands

- RR - Existing and potential permanent and summer home tracts within a primarily recreational area. The estimated number of houses, under conditions of full development, is indicated by a number in the symbol, i.e., RR-3 is suitable for three houses per acre.
- RC - Existing and potential commercial areas which occur within a primarily recreational area and which include motels, resorts, hotels, stores, etc.
- RT - Existing and potential camp and trailer sites within a primarily recreational area.
- P - Existing and potential county, state, federal, and private parks, racetracks, and fairgrounds.

TABLE 11 (Continued)

## LAND CLASSIFICATION STANDARDS

Land Class: Symbol :	Characteristics
<u>Miscellaneous Lands</u>	
F -	Presently forested lands, or lands subject to forest management, which meet the requirements for irrigable land, but which, because of climatic conditions and physiographic position, are better suited for timber production or some type of forest management program rather than for irrigated agriculture.
Vm -	Swamp and marsh lands which are covered by water most of the time and usually support a heavy growth of phreatophytes.
N -	Includes all lands which fail to meet the requirements of the above classes.

Major Categories of Land Classes

The lands mapped can be grouped into four major categories:

(1) irrigable lands, (2) urban lands, (3) recreational lands, and (4) miscellaneous lands: irrigable lands deemed best suited to remain under forest or range management, marshlands, and all those lands which fail to meet the requirements of the first three land class categories.

Irrigable Lands

Irrigable lands are grouped in appropriate classifications according to their suitability for development under irrigated agriculture, and their crop adaptability. Presently irrigated lands are included within these classifications, but developed urban lands and recreational lands are not classed as to irrigability. The time element with respect to when the lands might be developed did not enter the determination, except that suitability for irrigated agriculture was necessarily considered in light of present agricultural technology.



There are many factors which influence the suitability of land for irrigation development. Since soil characteristics and the physiography of the landscape are the most stable of these factors, they were the only ones considered in the survey in classifying lands as to their irrigability. The characteristics of the soils were established by examination of road cuts, ditchbanks, and material from test holes, together with observations of the type and density of native vegetation and crops. Representative slopes throughout the area were measured with a clinometer. Other aspects, such as those economic factors related to the production and marketing of climatically adapted crops, the location of lands with respect to a water supply, and climatic conditions, were not considered in the basic classification. These latter factors are very important in estimating the nature of future cropping patterns and practices, and will be given due consideration when estimates are made of future water requirements.

#### Urban Lands

It is recognized that future urban expansion will encroach upon some of the irrigable lands. The location and extent of this type of development is a function of many variables. Because this land classification survey is an inventory of relatively unchanging physical conditions, no attempt was made to locate the areas of urban encroachment. Therefore, only those lands devoted to urban uses in 1958 are designated as "urban" lands.

#### Recreational Lands

Present trends indicate an expanding rate of use and demand for recreational facilities throughout the State. In view of these trends and the ever-increasing population, it is recognized that there will be a demand for substantial land areas for recreational purposes. This is particularly



Example of Land Classification Delineated on Aerial Photograph.

(See Table 11, Page 62 for symbol explanation)

true of the mountainous and coastal regions where this type of development is expanding rather rapidly at the present time.

Generally speaking, all mountainous and coastal lands are suitable for some recreational use, such as hunting, fishing, and similar outdoor activities. However, for purposes of this survey, lands classified for recreational use were limited to those which are now, or may in the future be, used intensively for permanent and summer home tracts, camp and trailer sites, or parks outside of urban areas. These are lands requiring intensive water service.

Primary considerations for classification of home tracts and camp and trailer sites were such physical factors as soil depth, slope, and rockiness; such aesthetic values as view, nearness to lakes, streams or seashore, or density and type of forest canopy suitable for the respective uses; and the plans of national and state forest officials. An important factor in location of camp and trailer sites was the availability of a water supply, but isolation from existing roads did not influence site selection.

The total areas of existing national and state parks, rather than the specific areas of potential intensive development therein, are included with the recreational lands on Plate 3. For other parks, only the areas presently developed to intensive recreational use are delineated. No attempt was made to predict where additional park developments will take place.

#### Miscellaneous Lands

Two types of lands are included as miscellaneous lands in Table 12. They are designated separately on Plate 3. These are: (1) irrigable forest management lands; and (2) swamp and marshlands.



Campers at  
Madrona  
Forest  
Camp



Swimming  
in  
Smith River

TABLE 12  
CLASSIFICATION OF LANDS IN  
SMITH RIVER HYDROGRAPHIC UNIT  
(in acres)

Subunit	Irrigable agricultural lands										Urban lands (1958) UD	Recreational lands					Miscellaneous lands							
	Smooth lying					Gently sloping						Steeply sloping					Total	RR	RC	RT	PP	Total	F	V/m
	V	VI	Vw	H	HI	W	MI	Total																
Tillamook River	0	0	20	0	0	0	0	20	0								20	50	40	0	110	1,620	0	
Middle Fork	0	0	0	10	0	0	0	10	190								820	100	550	0	1,470	3,820	0	
Mill Creek	0	0	0	560	0	0	0	560	0								0	0	0	5,300	5,300	2,090	0	
North Fork	0	0	0	0	0	0	0	0	0								0	0	100	0	100	980	0	
Rowley Creek	200	0	0	30	0	20	0	250	60								0	0	70	0	70	880	0	
Smith River Plain	13,150	400	3,850	9,040	490	230	280	27,440	4,160								40	10	0	6,660	6,710	3,850	360	
South Fork	50	0	10	90	0	0	0	150	0								930	10	1,290	0	2,230	4,970	0	
Wilson Creek	120	30	0	10	0	50	0	210	30								0	0	0	3,530	3,530	1,020	0	
Winchuck River	360	0	0	260	0	10	0	630	130								0	0	0	10	10	710	0	
Total	13,880	430	3,880	10,000	490	310	280	29,270	4,570								1,810	170	2,050	15,500	19,530	19,940	360	

Irrigable forest management lands are those forested lands, range lands, or land subject to some type of forest management, having physical conditions making them susceptible to irrigation development, but, because of climatic conditions and physiographic position, are better suited and expected to remain under their present uses.

Swamp and marshlands are those lands which generally have water standing on them, and usually support a heavy growth of tules or other phreatophytes.

Approximately 425,000 acres, or 85 percent of the area of the hydrographic unit, failed to meet the requirements for the irrigable, urban, or recreational classification, or to be included within the two groups of miscellaneous lands described above.

Results of the land classification survey conducted in 1959 are shown on Plate 3, "Classification of Lands," Sheets 1 through 10. The total areas of each classification are listed by subunits in Table 12.

## CHAPTER V. SUMMARY

The Smith River Hydrographic Unit comprises 779 square miles (498,600 acres) of Del Norte County in the extreme northwest corner of the State, and includes the watersheds of the Smith River and of the other smaller streams to the north and west of the Klamath River Basin. Over 90 percent of the area of the unit, while not high in elevation (maximum elevation is the 6,400-foot peak of Bear Mountain), is rugged, being cut by numerous canyons and narrow stream valleys. Less than 10 percent is occupied by the 60-square-mile Smith River Plain lying along the Pacific Ocean north of Crescent City. Timber products constitute by far the largest industry and resource of the unit. This industry had its beginning in the 1850's, but has experienced its greatest growth since World War II. Agriculture is the second largest business, with dairy and horticultural products the principal sources of farm income. The portion of farmlands under irrigation has increased from a negligible quantity to nearly half of the cultivated lands in the last 20 years. Of the land irrigated in 1958, about 85 percent was in pasture and the remainder in truck crops. Mineral production (mainly sand and gravel and chromite), recreation, and commercial fishing are the other enterprises of significance in the unit. The center of population, business, and government within the unit is Crescent City. Smaller urban areas are located at Smith River, Fort Dick, and Gasquet.

### Water Use

A survey was made of water uses supplied by diversion of surface water during 1958, the objective of which was to locate and obtain data with respect to all diversions of more than 10 acre-feet per year. Continuous or periodic measurements were made on approximately 50 percent of the 62 diversions located in the unit.



Most of these diversions are based on riparian rights or on appropriative rights obtained by application to the State since enactment of the California Water Commission Act of 1914. There are a total of 120 presently valid applications pertinent to surface waters within the unit. Permits or licenses have been granted for 113 of these applications, while the other seven are either pending or incomplete.

#### Land Use

A detailed land use survey was conducted in the Smith River Hydrographic Unit during 1958 and is summarized as follows:

<u>Use</u>	<u>Area, in acres</u>
Agriculture	
Lands irrigated in 1958	3,210
Lands normally irrigated, but idle or fallow in 1958	400
Naturally high water table lands	3,880
Dry-farmed lands	<u>4,490</u>
	11,980
Urban	4,570
Recreation	
Residential, Commercial and camp sites	180
Parks	<u>15,500</u>
	15,680
Native vegetation	466,010
Marshlands	<u>360</u>
TOTAL	498,600

Of the 3,210 acres of land irrigated, 1,450 were irrigated with surface water, 1,690 with ground water, and 70 with surface and ground water combined. Of the 15,490 acres of parks in the unit, approximately 3 percent are actually developed. This is due to the fact that large portions of Jedediah Smith and Del Norte Coast Redwoods State Parks are undeveloped. Figure 2 portrays the land use distribution in the Smith River Hydrographic Unit.

### Land Classification

The results of the land classification survey conducted for this investigation are summarized below:

<u>Classification</u>	<u>Area, in acres</u>
Irrigable agricultural lands	29,290
Irrigable forest management lands	19,940
Present urban lands, 1958	4,570
Recreational lands	19,530
Other lands	<u>425,270</u>
TOTAL	498,600

Approximately 94 percent of the irrigable agricultural lands are located in the Smith River Plain Subunit, about 2 percent each in the Winchuck River and Mill Creek Subunits, and the remaining 2 percent in the other 6 subunits combined. Of the recreational lands, about 80 percent are situated in Smith River Plain, Mill Creek, and Wilson Creek Subunits. The bulk of these lands comprises the Del Norte Coast and Jedediah Smith Redwoods State Parks. Figure 3 portrays the distribution of the land classification in the Smith River Hydrographic Unit.

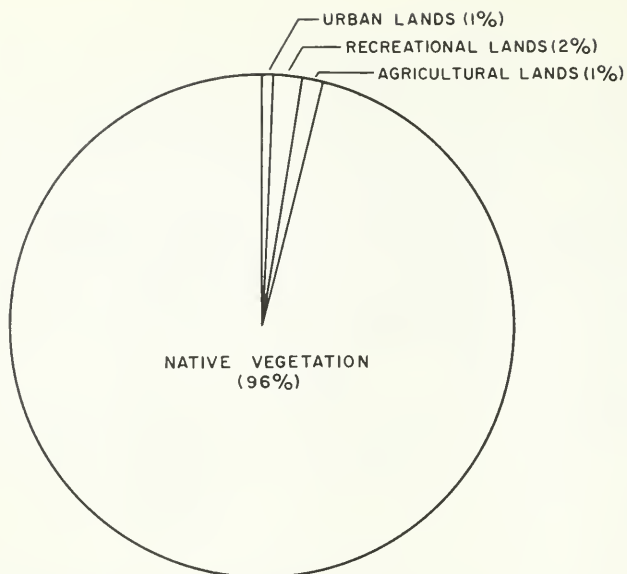


Figure 2  
1958 LAND USE

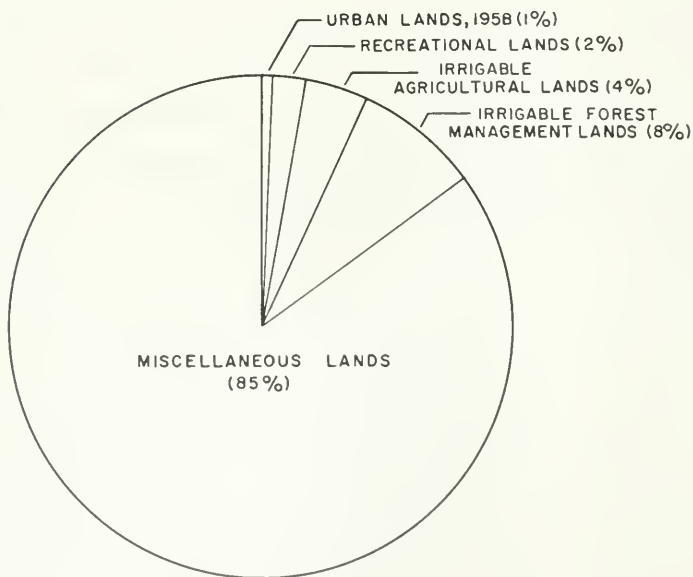


Figure 3  
CLASSIFICATION OF LANDS

APPENDIX A

STATEWIDE WATER RESOURCES AND WATER  
REQUIREMENTS PROGRAM



## APPENDIX A

### STATEWIDE WATER RESOURCES AND WATER REQUIREMENTS PROGRAM

California's major water problem today is that of development and delivery of supplemental water supplies to meet increasing water requirements throughout the State. The problem involves (1) the regulation of seasonal and cyclic fluctuation of streamflow to meet demand schedules in the areas of origin, and (2) the transmission of regulated surplus flows over long distances to areas of deficiency. The development and long-distance transfer of water is currently accomplished by such major facilities as the federal Central Valley Project and the Colorado River Aqueduct of The Metropolitan Water District of Southern California. However, such development and transfer will be considerably broadened in scope by the State Water Facilities.

Consumptive water requirements of the State on a basin-wide basis were estimated in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements of California," June 1955. However, to provide for local water needs while considering specific export projects, more detailed information must be made available on present and projected future water requirements of the areas in which the projects are to be built. This will necessitate the considerably more detailed collection and analysis of data on hydrology, land use and land capability, and economics.

Recognizing that additional information is needed if the water needs of areas of origin are to be adequately protected in large-scale water development projects, the 1956 Legislature authorized an investigation to determine the water resources and water requirements of the respective watersheds in the State.

"232. The Legislature finds and declares that in providing for the full development and utilization of the water resources of this State it is necessary to obtain for consideration by the Legislature and the people, information as to the water which can be made available for exportation from the watersheds in which it originates without depriving those watersheds of water necessary for beneficial uses therein. To this end, the department is authorized and directed to conduct investigations and hearings and to prepare findings therefrom and to report thereon to the Legislature at the earliest possible date with respect to the following matters:

(a) The boundaries of the respective watersheds of the State and the quantities of water originating therein;

(b) The quantities of water reasonably required for ultimate beneficial use in the respective watersheds;

(c) The quantities of water, if any, available for export from the respective watersheds;

(d) The areas which can be served by the water available for export from each watershed; and

(e) The present use of water within each watershed together with the apparent claim of water right attaching thereto, excluding individual uses of water involving diversions of small quantities which, in the judgment of the Director of Water Resources, are insufficient in the aggregate to materially affect the quantitative determinations included in the report.

"Before adopting any findings which are reported to the Legislature, the department shall hold public hearings after reasonable notice, at which all interested persons may be heard."

(Added by Stats. 1956 (Ex. Sess.), Ch. 61; amended by Stats. 1959, Ch. 2025.)

For purposes of this investigation, the State has been divided into 12 major hydrographic areas. These areas, in turn, have been subdivided into hydrographic units generally comprising watersheds of individual rivers. These watersheds will be field surveyed in some detail and, where previous detailed studies have been made, the information will be brought up to date. Water resources and water requirements will be determined and reported in a bulletin for each of the hydrographic areas. Since many years are required to gather sufficient data for adequate analysis



of water resources and water requirements, surveys of present land and water use will be made, and the data published, separately for each of the hydrographic units. This procedure will make the land and water use data available sooner than would otherwise be possible. Bulletin No. 94-4, "Land and Water Use in Smith River Hydrographic Unit," is the fourth of a series reporting the results of these surveys.

At a future date, estimates, largely based on the land and water use surveys, will be made of quantities of water reasonably required for future beneficial use in each watershed. The quantity of water potentially available for export from each watershed will be determined after allowances are made for the satisfaction of the local requirements and prior rights to divert water to other areas. For those watersheds in which no exportable water is available, the water supply deficiency will be determined. These estimates will be published as they become available, in such form as to make possible a county-by-county determination.

The calculations of future water requirements will be based, in part, on predicted future land uses derived from land classification surveys, economic studies, population forecasts, industrial and agricultural development, and recreational needs. Agricultural water requirements will be based on unit water use by the various predicted crop types; urban and recreational requirements on per capita water use values; fish and wildlife requirements on minimum streamflow needed or water demands for wildlife area; and industrial water requirements on measured water deliveries to various types and sizes of industries now existing. In forecasting future industrial development, water quality problems will be given full consideration.

Water resources will be determined from records of all stream gaging stations, including new stations which were established for this and other investigations of the department. The new stations were generally constructed on streams which originate in the smaller watersheds for which runoff data are necessary, but for which no data have been available. Two new stream gaging stations requested for use by this investigation were added to the existing network of stations operated by the U. S. Geological Survey in the Smith River Hydrographic Unit. These stations were installed:

<u>Stream gaging station</u>	<u>Date installed</u>
Rowdy Creek at Smith River	June 20, 1957
Middle Fork Smith River at Gasquet	October 1, 1958

APPENDIX B

REFERENCES AND  
REPORTS ON RELATED INVESTIGATIONS



## APPENDIX B

### REFERENCES AND REPORTS ON RELATED INVESTIGATIONS

Prior reports and documents reviewed in connection with the investigation of land and water use in the Smith River Hydrographic Unit include the following:

Bancroft, Hubert H. "History of the Northwest Coast." Volume 1.

California State Chamber of Commerce. "Economic Survey of California and Its Counties." 1958.

California State Department of Fish and Game. "The Commercial Fish Catch of California for 1952." Bulletin 95.

----- "The Marine Fish Catch of California for 1955 and 1956." Bulletin 105.

California State Department of Natural Resources, Division of Beaches and Parks. "News and Views." January - February 1960, Supplement.

California State Department of Natural Resources, Division of Mines. "Mineral Information Service Bulletin." Annual production issues, 1947-1960.

California State Department of Natural Resources, Division of Mines. "29th Report of State Mineralogist." 1933.

California State Department of Natural Resources, Division of Mines. "Geologic Reconnaissance of the Northern Coast Ranges and Klamath Mountains, California, With a Summary of the Mineral Resources." Bulletin 179. 1960.

California State Department of Water Resources. "State Water Right Applications for Unappropriated Water, Assignment Thereof, Reservations for Counties of Origin, and Other Related Matters." January 1959.

----- "The California Water Plan." Bulletin No. 3. 1957.

----- "Land and Water Use in Tule River Hydrographic Unit." Bulletin 94-1. 1962.

----- "Land and Water Use in Trinity River Hydrographic Unit." Bulletin 94-2. 1962.

----- "Land and Water Use in Yuba-Bear River Hydrographic Unit." Bulletin 94-3. 1962.

California State Water Resources Board. "Water Resources of California." Bulletin No. 1. 1951.

----. "Water Utilization and Requirements of California." Bulletin No. 2. 1955.

Chase, Don M. "He Opened the West." 1958.

Chicago Public Administration Service. "Local Government in Del Norte County, California." 1957.

Del Norte County. "Agricultural Commissioner's Report." 1959.

Del Norte County Engineer's Office. "Land Use Map." February 1960.

Hoener, Edgar P. "Timberman." 1950-1956.

----. "Timberman's Directory of Western Forest Industries." 1950.

Jenkins, R. J. "Del Norte County as It Is." 1894.

Miller Freeman Publications. "Timberman." 1957-1959.

----. "Lumberman." 1950-1959.

----. "Handbook and Directory of the Forest Industries." 1955-1959.

Smith, Esther Ruth. "The History of Del Norte County, California." 1953.

Sullivan, Maurice S. "The Travels of Jedediah Smith." 1934.

United States Department of Agriculture, Forest Service, Pacific Southwest Forestry and Range Experiment Station. Forest Service Releases. Nos. 20 and 35.

United States Department of the Interior, Geologic Survey, "Geology and Mineral Resources of Gasquet Quadrangle, California-Oregon." Bulletin 995-C. 1953.

United States Department of the Interior, Geologic Survey, "Geology and Ground Water Features of the Smith River Plain, Del Norte County, California." Water Supply Paper 1254. 1954.

United States Department of the Interior, Pacific Southwest Field Committee. "Natural Resources of Northwestern California." Preliminary Reports. 1956.

## APPENDIX C

### LEGAL CONSIDERATIONS



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## TABLES

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## APPENDIX C

### LEGAL CONSIDERATIONS

There are set forth in the following paragraphs brief general statements with respect to the California law of water rights to supplement and to provide a background for information on water rights contained in Chapter II. Also included is a tabulation of currently valid applications to appropriate water within Smith River Hydrographic Unit filed with the State Water Rights Board.

#### California Water Rights

All rights to water in California are usufructuary. They consist only in rights to the beneficial use of the water. Water itself is subject to ownership only when it has been taken into actual possession. However, the owner of an usufructuary right is entitled to have the water in the surface stream flow to the point of his diversion, or to his riparian lands, without the unlawful interference by upstream diverters who have rights which are inferior to his.

Riparian and appropriative rights to surface water are recognized in California. Riparian rights are paramount until lost or impaired by grant, condemnation or prescription. Correlative rights to ground water, also recognized in California, are analogous to the riparian rights to surface waters.

All water rights, both surface and underground, are subject to the doctrine of reasonable use expressed in Section 3 of Article 14 of the State Constitution. This doctrine limits the rights to the quantity of water reasonably required for beneficial use and prohibits waste, unreasonable use, or unreasonable methods of use or diversion.

## Riparian Rights

Riparian rights are part and parcel of riparian lands, i.e., lands contiguous to a natural watercourse within a watershed. They extend only to the smallest tract, so situated, held within the continuous chain of ownership. Each riparian right is correlative with each and every other such right within the watershed. In the event of insufficient water for all, the available supply must be prorated, except that an upper riparian owner may take the whole supply if necessary for domestic use. Riparian rights extend to future reasonable requirements for beneficial use upon riparian lands.

Riparian rights do not authorize use of water on nonriparian lands, nor do they permit the seasonal storage of water. They are not created by use nor are they lost by nonuse. They do not prevent temporary appropriation by others of water not presently needed on riparian lands. The rights may be severed or lost, in the whole or in part, by grant or condemnation, and they cannot thereafter be restored. A parcel of land loses its riparian right when separated from contact with a stream by conveyance, unless the right is specifically reserved by the grantor. Riparian rights cannot be transferred for use upon another parcel of land. A riparian right may also be lost by prescription.

Riparian rights are superior to appropriative rights, except in the case of rights founded on appropriations of water upon vacant public lands initiated before valid steps were taken to remove the riparian lands from the domain of the United States, regardless of whether the appropriative diversions and/or the lands they serve are upstream or downstream from the riparian lands.

## Appropriative Rights

The miners of the early gold-seeking period established the doctrine of appropriative water rights in California. Their procedure was based simply on beneficial use and required no recordation in establishing the right. The first procedure requiring recordation in perfecting an appropriative right was the Civil Code enactment of 1872. This procedure, modified several times, was in use until the Water Commission Act became effective on December 19, 1914.

The oldest of the procedures to perfect an appropriative right required simply that a diversion be made and the water be put to beneficial use. The date of the right began with its beneficial use.

The 1872 Civil Code procedure required that before a diversion of surface water could be made, a notice of intention describing the source of the water, the location of the proposed diversion, the amount to be diverted, the use and the place of use be posted at or near the place of proposed diversion. This notice was to be signed, witnessed, and a copy filed with the recorder in the county in which the proposed diversion was located. The appropriative right thus initiated became perfected when the water was put to beneficial use, but the rights related back to the time the notice was posted. While the 1872 Civil Code procedure was the first to require recordation, it was not an exclusive procedure, in that an appropriative right could be perfected to the extent of beneficial use simply by diverting the water and making beneficial use of it.

The Water Commission Act, on the other hand, established an exclusive procedure for the appropriation of water. This enactment requires that a permit be obtained from the State of California before water can be appropriated. The procedure outlined by the Water Commission Act, as now

codified in the Water Code, requires that first an application to appropriate water be submitted to the State Water Rights Board. Upon the approval of the application, a permit is issued so that the applicant can construct the features necessary to put the water to beneficial use. When the project has been completed, an inspection of it is made and a license is issued, to the extent of beneficial use, provided the terms and conditions of the permit have been fulfilled.

Once an appropriative water right has been initiated, it must be diligently prosecuted to completion in order to maintain its date of priority. While water may not be appropriated for a distant future use, a reasonable amount of time is allowed to put the full amount of water to use within the original intent of the application to appropriate water.

A right to appropriate water is lost by abandonment or continuous nonuse. In the case of an appropriation initiated prior to 1914, the period of continuous nonuse is five years, while under the Water Commission Act, or the Water Code, the period of continuous nonuse is only three years. Domestic use of water is the highest use and irrigation next highest use of water as provided in the Water Code.

#### Ground Water Rights

The permit and license procedure established by the Water Commission Act applies only to streams and other bodies of surface water and to subterranean streams flowing through known and definite channels. Percolating ground water is therefore excluded, and rights to its use are governed by judicial decisions rather than by statute. Ground waters are presumed to be percolating in the absence of evidence to the contrary.

The owner of land overlying a ground water basin or stratum has, like the riparian owner, a paramount right to the reasonable beneficial use

of the natural supply upon his overlying land, which right he holds in common with all other landowners similarly situated. Only surplus water in excess of reasonable requirements for beneficial use upon overlying lands is subject to appropriation for beneficial use upon other lands. Prescriptive rights to ground water may be acquired under the same circumstances as prescriptive rights to water of surface streams.

Where ground water and surface water are interconnected, one acting as a tributary to the other, both are treated as part of a common supply, and users of water from either source are entitled to protection from substantial injury as a result of use by others of water from the other source. Thus, an owner of land riparian to a stream may have his right to the use of water protected against impairment by an appropriator of percolating ground water tributary to the stream and required for the maintenance and support of its flow. Likewise, where water from a stream percolates to a ground water basin or stratum, the owner of land overlying such ground water may be protected from an appropriation of water of the stream, if such use causes a substantial impairment of the ground water supply. As between riparian use of surface water and overlying use of ground water tributary to the stream, a sharing of the available water supply on the basis of reasonable beneficial use should be made.

#### State Assistance

Under provisions of the State Water Code, actions involving determinations of rights to the use of water brought in either state or federal courts may, at the court's discretion, be referred to the State Water Rights Board. Under provisions of Water Code Section 2000, the court may appoint the board to referee "any or all issues involved in the suit," or under Section 2001 it may limit the reference to "investigation of and report upon



any or all physical facts involved." This reference procedure may be followed in suits involving either or both surface and ground waters.

A simplified procedure is available for adjudication of rights to the use of water of streams, lakes, and other bodies of water, but the method excludes the determination of rights to take water from an underground supply other than from a subterranean stream flowing through known and definite channels. Water Code Sections 2500 to 2900, inclusive, authorize the initiation of such a proceeding before the board. The board then makes an engineering investigation and report, holds hearings, and prepares an order of determination which is submitted to the court. After hearings, the court makes a final determination of the water rights.

Court actions which involve a determination of all the relative rights to the use of water of an entire stream or stream system and/or ground water basin afford a basis for distribution of water after decree under watermaster service. Water users may secure the services of the Department of Water Resources under Water Code Sections 4000 to 4407, inclusive, in making distribution of the water to them according to their respective rights, as determined by the court.

#### Litigation Concerning Local Water Rights

There has been no major adjudication of water rights in the Smith River Hydrographic Unit. Consequently, neither the State Water Rights Board nor any of its predecessor agencies have been involved in a court reference, and state watermaster service has not been established.

#### Applications to Appropriate Water

Applications to appropriate water within the Smith River Hydrographic Unit, filed with the State since 1914 and active on June 28, 1960, are summarized in Table C-1. Those diversions, for which an application to



appropriate water is filed with the State and which were found in this survey to be of significant size, have been assigned diversion numbers, which are included in the table. The status of each application as to the granting of a permit or license is also shown in the table.

TABLE C-1 (Continued)  
APPLICATIONS TO APPROPRIATE WATER IN  
SMITH RIVER HYDROGRAPHIC UNIT  
(Filed with State Water Rights Board as of June 28, 1960)

Application number	Date filed	Present owner	DWR diversion permit number	Source	Location of point of diversion					Amount	Period of diversion	Purpose	Status*
					1/4	1/4	Sec	Tp	R. B. & M.				
L-1000	1/10/51	Present City Municipal Water Department	158/14-2101	Tributary to Elk Creek	NE	N4	21	16N	1/4	H	0.557 cfs Jan 1-Dec 31	Municipal, industrial, domestic, and recreational	P-40332
L-1001	1/10/51	Sal-creek Energy, Inc.	158/14-491	Tributary to Lake Earl	SE	S4	9	16N	1/4	H	0.21 cfs Jan 1-Dec 31 3' of Nov 1-Mar 1	Industrial	L-4140
L-1002	4/1/51	W. F. and Marie H. Hoffman	—	Tributary to Pacific Ocean	NE	SE	5	16N	1/4	H	1,000 gpd Apr 1-Oct 1	Industrial	L-4129
L-1003	4/1/51	Joseph A. and Anna J. Smith	—	Tributary to Smith River	SE	S4	20	17N	2E	H	1,000 gpd Jan 1-Dec 31	Domestic and fire protection	L-4078
L-1004	4/1/51	Joseph A. and Anna J. Smith	—	Tributary to Smith River	SE	S4	20	17N	2E	H	1,000 gpd Jan 1-Dec 31	Domestic and fire protection	L-4079
L-1005	6/2/51	W. Hart County Aira Boat Company	—	Tributary to Middle Fork Smith River	NE	NE	28	17N	2E	H	2,500 gpd Jan 1-Dec 31	Domestic	P-4098
L-1007	1/14/51	United States Air divers Well and Forest	—	Spring tributary to Patrick Creek tributary to Pacific Ocean	SE	S4	9	17N	2E	H	1,900 gpd Jan 1-Dec 31	Domestic	L-381
L-1008	4/14/51	W. F. and Marie H. Hoffman	—	Spring tributary to Smith River	N4	S4	4	16N	1E	H	4,500 gpd Jan 1-Dec 31	Domestic	L-4129
L-1009	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Spring tributary to Smith River	N4	SE	5	16N	2E	H	0.15 cfs Jan 1-Dec 31	Domestic and stockwatering	L-4127
L-1010	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Tributary to North Fork Smith River	N4	SE	5	16N	1/4	H	0.25 cfs Jan 1-Dec 31 8' of Dec 1-Jun 1	Industrial	L-4128
L-1011	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Jordan Creek	NE	N4	9	16N	1E	H	500 gpd Jan 1-Dec 31	Domestic	L-4169
L-1012	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Spring tributary to Smith River	N4	SE	5	16N	2E	H	0.45 cfs Jan 1-Dec 31	Power	L-4128
L-1013	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Tributary to North Fork Smith River	N4	S4	25	16N	1/4	H	0.45 cfs Jan 1-Dec 31	Domestic stockwatering, fire protection, and irrigation, 5 acres	P-4079
L-1014	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Tributary to Pacific Ocean	NE	SE	3	16N	1E	H	0.21 cfs May 15-Oct 31	Irrigation, 2.5 acres	L-4106
L-1015	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Spring tributary to Little Mill Creek	N4	SE	9	16N	1E	H	500 gpd Jan 1-Dec 31	Domestic	L-4111
L-1016	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Smith River	NE	SE	8	16N	1E	H	2,400 gpd Jan 1-Dec 31	Domestic	L-4125
L-1017	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Smith River	N4	S4	12	17N	1/4	H	0.28 cfs May 15-Oct 1	Irrigation, 11.8 acres	L-4120
L-1018	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Elk Creek	N4	NE	28	16N	1/4	H	0.48 cfs May 15-Oct 31 7' of Apr 1-May 1	Industrial and fire protection	L-4112
L-1019	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Mill Creek	S4	NE	7	15N	1E	H	0.09 cfs Jan 1-Oct 1	Irrigation, 27 acres	L-4114
L-1020	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Mill Creek	N4	NE	7	15N	1E	H	0.10 cfs Jan 1-Oct 1	Irrigation, 30 acres	L-4113
L-1021	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Mill Creek	SE	S4	6	15N	1E	H	0.06 cfs Jan 1-Oct 1	Irrigation, 10 acres	L-4117
L-1022	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Mill Creek	N4	NE	6	15N	1E	H	0.06 cfs Jan 1-Oct 1	Irrigation, 18 acres	L-4118
L-1023	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Dead Lake	NE	N4	18	16N	1/4	H	11.14 cfs Jan 1-Dec 31	Industrial and fire protection	L-4140
L-1024	1/10/51	W. F. and Marie H. Hoffman	158/14-511	Stump Lake	N4	N4	18	16N	1/4	H	1,500 gpd Jan 1-Dec 31	Domestic	L-4141

\* P - 1/4 size grant number of application approved. L - Indicates license number of right confirmed. Incomplete - Indicates application not yet complete. Pending - Indicates application complete but not yet approved.

APPLICATIONS TO APPROPRIATE WATER IN  
SMITH RIVER HYDROGRAPHIC UNIT

(Filed with State Water Rights Board as of June 28, 1960)

Application number	Date filed	Present owner	DWR diversion permit number	Source	Location of point of diversion						Amount	Period of diversion	Purpose	Status*
					1/4	1/4	Sec	Tp	R	B				
11525	8/22/46	Hollis J. and Jean Rummley	17N/3E-30L	Monkey Creek	SE	SE	3	17N	3E	R	2.25 cfs	Jan 1-Dec 31	Fish Culture	1-3384
11593	10/25/46	Uel Morse Palastane Mutual Water Company	--	Tributary to Pacific Ocean	NE	NE	7	16N	1E	R	2,600 gpd	Jan 1-Dec 31	Domestic and stockwatering	1-5927
11801	9/28/49	George H. Vroman	--	Hazeltine Creek	NE	NE	27	17N	1W	R	12,000 gpd	May 1-Sept 30	Irrigation, 2 acres	1-3400
11975	7/7/47	Shirley L. Ramsey Burke	--	Tributary to Smith River	SW	SW	10	16N	1E	R	1,700 gpd	Jan 1-Dec 31	Domestic and fire protection	1-3796
12021	12/31/47	Arthur and Florence Hanzeth	--	Tributary to Smith River	NE	NE	9	16N	1E	R	4,500 gpd	Jan 1-Dec 31	Domestic	1-3666
12022	12/31/47	Frank G. and Mildred V. Curtis	--	Tributary to Smith River	NE	NE	9	16N	1E	R	4,100 gpd	Jan 1-Dec 31	Domestic	1-5111
12023	12/31/47	Walter H. and Mildred Johnson	--	Tributary to Smith River	NE	NE	9	16N	1E	R	3,100 gpd	May 1-Oct 31	Irrigation, 1.5 acres	1-4577
12024	12/31/47	Robert S. and Martha A. Hatt	--	Tributary to Smith River	NE	NE	9	16N	1E	R	1,100 gpd	May 1-Oct 31	Irrigation, 1.5 acres	1-4637
12025	12/31/47	Hans A. and Irma M. Rulger	--	Tributary to Smith River	NE	NE	9	16N	1E	R	1,100 gpd	Jan 1-Dec 31	Domestic	1-3887
12075	6/30/48	Charles C. and Blanche L. Selig	--	Spring tributary to Smith River	NE	NE	9	16N	1E	R	2,000 gpd	Jan 1-Dec 31	Domestic	1-5114
12019	7/26/48	H. D. Dickson, et al.	--	Spring tributary to Rock Creek	SW	SW	10	16N	1E	R	16,000 gpd	Jan 1-Dec 31	Domestic and fire protection	1-3775
12020	7/26/48	Merrill G. Dickson	--	Spring tributary to Rock Creek	SW	SW	4	16N	1E	R	2,000 gpd	Jan 1-Dec 31	Irrigation, 3 acres	1-4302
12026	9/23/41	F. L. Plalant-d	--	Spring tributary to Pacific Ocean	SW	SW	4	16N	1E	R	2,000 gpd	Jan 1-Dec 31	Domestic	1-3658
12706	11/2/48	William D. and Mary J. Fisher	18W/4E-50L	Gilbert Creek	NE	NE	7	16N	1E	R	1,300 gpd	Jan 1-Dec 31	Domestic	1-5129
12776	2/23/49	Edna E. and Pearl A. Johnston	17N/4E-51L	Tributary to Middle Fork Smith River	SE	SE	5	18N	1W	R	0.08 cfs	May 1-Oct 1	Irrigation, 35 acres	1-5035
12865	8/21/49	Leaver A., Martha S., and Lewis Ulrich	17N/4E-21L	Smith River	NE	NE	5	17N	1E	R	2.5 cfs	Oct 1-Jul 31	Power	1-5610
13095	9/28/49	Robert L. and Marjorie E. Snyder	--	Spring tributary to Smith River	SW	SW	2	17N	1W	R	0.48 cfs	May 15-Oct 1	Irrigation, 70 acres	1-4018
13166	9/28/49	David Zopf	--	Zopf Spring	SE	SE	10	16N	1E	R	16,000 gpd	Jan 1-Dec 31	Domestic and fire protection	1-4092
13368	10/2/49	Fresley D. and Oella M. Tryon	--	Scott Creek	SE	SE	8	16N	1E	R	5,700 gpd	Jan 1-Dec 31	Domestic	1-3616
13373	10/2/49	Clarence A. and Vahel L. Sawyer	--	Springs tributary to Smith River	SE	SE	24	17N	1W	R	16,000 gpd	Jan 1-Dec 31	Domestic and irrigation, 2 acres	1-3902
13382	10/5/49	Vernon O. and Elsie H. Maheen	--	Tributary to Middle Fork Smith River	SW	SW	9	16N	1E	R	4,320 gpd	May 1-Oct 1	Domestic and irrigation, 1 acre	1-4160
13604	3/23/50	Evergreen Glade Courts	--	Zopf Spring	NE	NE	28	17N	2E	R	9,350 gpd	Jan 1-Dec 31	Domestic	1-3729
13648	5/1/50	Olga V. L-oley	--	Reynolds Creek	SE	SE	8	16N	1E	R	1,500 gpd	Jan 1-Dec 31	Domestic	1-4963
13713	6/7/50	Ray M. and Marie R. Strumling	18W/4E-52L	Olbert Creek	SW	SW	4	16N	1E	R	6,500 gpd	Jan 1-Dec 31	Domestic	1-4139
13775	6/7/50				SW	SW	5	18N	1W	R	0.11 cfs	Apr 1-Oct 1	Irrigation, 67 acres	1-4138

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APPLICATIONS TO APPROPRIATE WATER IN  
SMITH RIVER HYDROGRAPHIC UNIT

(Filed with State Water Rights Board as of June 28, 1960)

Application Number	Date filed	Present owner	DWR diversion location number	Source	Location of point of diversion						Amount	Period of diversion	Purpose	Status*
					1/4	1/4	Sec.	Tp.	R.	B. & M.				
2459	7/29/21	Greensboro City Municipal Water Department	168/14-281	Tributary to Elk Creek	NE	SE	20	16N	3W	H	0.35 cfs	Jan 1-Dec 31	Municipal	L-568
5594	10/17/21	Robert A. and Elizabeth C. Hastings	--	Michael Creek	NE	NE	22	18N	3W	H	0.009 cfs	Jan 1-Dec 31	Domestic and stockwatering	L-345
5136	7/30/26	Norman L. and Helen J. Wested	--	Tributary to Pacific Ocean	NE	NE	35	16N	3W	H	0.037 cfs	Jan 1-Dec 31 Jul 1-Sep 1	Domestic Irrigation, 2 acres	L-1479
5310	12/15/26	Fred M. and Helen Macabee	--	Kelly's Gulch	NE	SW	27	17N	7E	H	0.275 cfs	Jan 1-Dec 31	Domestic and power	L-1335
5705	9/20/27	Charles Woodruff, Helen Hall, Kenneth B. Lewis, Eugene H. Lewis, and William H. Lewis, Jr.	--	Hark Creek	SW	SW	4	16N	1E	H	8,000 gpd	Jan 1-Dec 31	Domestic	L-3590
6136	11/26/28	Allen Place Hoses	168/35-342	East Fork of East Fork Illinois River (Now known as Dunn Creek)	SE	NE	34	19N	5E	H	3 cfs	Nov 1-Apr 1	Mining	L-3546
6247	11/29/28	California State Department of Public Works, Division of Highways	--	Tributary to Middle Fork Smith River	SE	SW	32	18N	4E	H	4,700 gpd	Jan 1-Dec 31	Domestic	L-1283
6184	2/7/29	Frank Stanley, Claire Stanley, Mr. and Mrs. A. A. Saville, Tracy Fowler, Pauline Howell, Fred Dixon, Jr. and Mrs. Albert Dixon, Jr., and Mrs. Alvin B. Conville, Donald M. Blount, Orrille Harrison, and Arthur Harrison	168/15-164	Tributary to Smith River	Lot 1	16	16N	1E	H	0.025 cfs	Jan 1-Dec 31	Domestic and irrigation, 1 acre	L-1135	
6441	9/20/29	California State Department of Public Works, Division of Highways	--	Tributary to Smith River	NE	NE	29	17N	2E	H	5,000 gpd	Jan 1-Dec 31	Domestic	L-1288
6453	10/7/29	Patrick Creek Corporation	170/31-342	Patrick Creek	NE	SW	9	17N	3E	H	5 cfs	Jan 1-Dec 31	Power	L-1266
6523	12/2/29	Georgetown Mutual Water Company	170/25-192	Tributary to Smith River	SW	NE	19	17N	2E	H	0.075 cfs	Jan 1-Dec 31	Domestic	L-2040
6878	1/26/31	Fred M. and Helen A. Macabee	--	Kelly's Gulch	NE	SW	27	17N	2E	H	3,000 gpd	Jan 1-Dec 31	Domestic	L-1936
7242	4/19/42	United States Six Rivers National Forest	--	Tributary to Middle Fork Smith River	SE	SW	32	18N	4E	H	300 gpd	Jan 1-Dec 31	Domestic	L-1507
7243	4/19/42	United States Six Rivers National Forest	--	Tributary to Smith River	NE	NE	29	17N	2E	H	0.217 cfs	Jan 1-Dec 31	Domestic	L-1508
7312	3/1/43	Wm. G. Wells and Charles A. Goughlan	170/25-202	Springs tributary to Smith River	SE	SE	20	17N	2E	H	0.025 cfs	May 1-Oct 15	Irrigation, 2 acres	L-1724
7313	3/1/43	Wm. G. Wells and Charles A. Goughlan	170/25-202	Springs tributary to Smith River	SE	SE	20	17N	2E	H	0.03 cfs	Jan 1-Dec 31	Domestic	L-1753
7828	1/29/54	Bernard McGowan	--	Michael Creek	NE	NE	29	15N	3E	H	2 cfs	Oct 1-Jun 1	Mining	L-1075
8360	11/19/54	United States Shoshone National Forest	--	Tributary to Elk Creek	SE	SE	3	18N	4E	H	1,500 gpd	May 1-Oct 31	Recreational, domestic, and fire protection	L-2180
8227	2/2/55	United States Six Rivers National Forest	--	Tributary to Middle Fork Smith River	SE	SW	9	17N	3E	H	4,800 gpd	Jan 1-Dec 31	Domestic	L-2181
8552	4/23/55	Lawrence L. and Martha Centre	--	Rock Creek	SW	SW	4	16N	1E	H	3,800 gpd	Jan 1-Dec 31	Domestic	L-2098

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TABLE C-1 (Continued)  
APPLICATIONS TO APPROPRIATE WATER IN  
SMITH RIVER HYDROGRAPHIC UNIT  
(Filed with State Water Rights Board as of June 28, 1960)

Application number	Date filed	Present owner	DWR diversion to column number	Source	Location of point of diversion				Amount	Period of diversion	Purpose	Status*
					1/4	1/4	Sec.	Tp.				
15245	4/15/53	United States Six divers National Forest	—	Spring tributary to North Fork Smith River	NW	NE	20	17N	22	H	2,400 gpd Jan 1-Dec 31	Domestic L-2318
15246	4/15/53	United States Six divers National Forest	—	Spring tributary to North Fork Smith River	SE	SE	17	17N	22	H	1,100 gpd Jan 1-Dec 31	Domestic L-2321
15297	4/15/53	United States Six divers National Forest	—	Spring tributary to North Fork Smith River	NE	NE	20	17N	22	H	800 gpd Jan 1-Dec 31	Domestic L-2319
15334	5/6/53	Ed Carlson	17N/3E-901	Spring tributary to Patrick Creek	SW	SW	9	17N	3E	H	0.28 cfs Jan 1-Dec 31	Power and domestic L-2882
15473	9/24/53	Lucas Plywood and Manufacturing Company	16S/34-2382	Spring tributary to Patrick Creek	NE	SE	9	17N	3E	H	0.08 cfs Nov 1-Mar 1	Industrial L-2565
15650	1/15/53	James S. and Marjorie N. Night	—	Tributary to Elk Creek	SW	SW	21	16N	14	H	0.06 cfs 6 af	Domestic and stockwatering L-2153
16118	8/22/55	Joseph A. and Anna G. Smith	—	Tributary to sandy Creek	SE	SE	23	18N	14	H	6,950 gpd Jan 1-Oct 1	Irrigation, 7 acres L-2063
16702	10/27/54	William and Roy L. Freeman	18N/2E-321	Tributary to Smith River	SE	SW	20	17N	2E	H	5,000 gpd Jan 1-Dec 31	Domestic and fire protection L-2054
16846	1/23/56	Tim W. and Robert H. Fawn	—	James Creek	SW	SE	13	15N	2E	H	1 cfs May 1-Oct 15	Irrigation, 84 acres L-2064
16851	1/25/56	David F. and Nora F. Spindler	—	Spring tributary to Middle Fork Smith River	SE	SE	20	17N	2E	H	2,000 gpd Jan 1-Dec 31	Domestic L-2065
16949	3/20/56	Edward T. and Gladys H. Pettis	—	Spring tributary to Middle Fork Smith River	SE	SE	20	17N	2E	H	2,000 gpd Jan 1-Dec 31	Domestic L-2066
17051	4/22/56	California Water Commission	—	Smith River	NW	NE	24	17N	14	H	0.07 cfs Jan 1-Dec 31	Domestic, fish culture, and irrigation, 4 acres L-2068
17052	4/22/56	California Water Commission	—	South Fork Smith River	—	NW	10	15N	2E	H	1,235,000 af Jan 1-Dec 31	Irrigation, domestic, stockwatering, flood control, fish and wildlife, recreational, and salinity control Incomplete L-2069
17068	5/3/56	Wesley and Margaret LaCombe	—	South Fork Smith River	—	NW	10	15N	2E	H	1,235,000 af Jan 1-Dec 31	Power Incomplete L-2070
17275	9/13/56	Edna and Ruby M. Doreh	—	Smith River	SE	SW	9	16N	1E	H	0.075 cfs Jan 1-Dec 31	Domestic and irrigation, 6 acres L-2081
17429	1/22/57	Ellen M. Torpe, C. P. Corrie, A. J. Hallen, and Arthur Earl	—	Spring tributary to Smith River	NW	SE	9	16N	1E	H	2,400 gpd Jan 1-Dec 31	Domestic L-2074
17811	9/3/57	Shurt and English	16N/34-312	Spring and stream tributary to Smith River	NW	SE	9	16N	1E	H	12,000 gpd Jan 1-Dec 31	Domestic L-2086
17901	12/3/57	County of Inyo	—	Jordan Creek	SE	SW	3	16N	14	N	0.27 cfs Jan 1-Oct 1	Irrigation, 56 acres L-2147
17730	12/31/57	United States Six divers National Forest	—	Spring tributary to Smith River	SE	SW	2	17N	3E	H	0.05 cfs Jan 1-Dec 31	Domestic and irrigation, 10 acres L-2162
17946	1/23/58	City of Tulelake City	17N/4-1381	Tributary to Middle Fork Smith River	NW	NE	27	17N	2E	N	0.01 cfs Jan 1-Dec 31	Domestic L-2119
18617	11/20/58	A. A. Freeman	—	Smith River	NW	NE	13	17N	14	H	9.8 cfs Jan 1-Dec 31	Municipal L-2175
18608	3/25/59	Earl A. Helling	18N/4-151	Spring tributary to Smith River	NE	NE	25	17N	14	H	3,000 gpd Jan 1-Dec 31	Domestic L-2174
18604	4/1/59	James E. Gravestock	—	Elk Creek	NE	NE	2	18N	4E	H	2 cfs May 15-Sep 30	Recreational and fish culture L-2017
				Hall Creek	NE	SE	23	8N	14	H	3,500 gpd Jan 1-Dec 31	Domestic, recreational, and fish culture L-2012

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TABLE C-1 (Continued)  
APPLICATIONS TO APPROPRIATE WATER IN  
SMITH RIVER HYDROGRAPHIC UNIT  
(Filed with State Water Rights Board as of June 28, 1960)

Application number	Date filed	Present owner	DWR diversion location number	Source	Location of point of diversion						Amount	Period of diversion	Purpose	Status*
					1/4	1/4	Sec	Tp	R	B	M			
18651	4/17/59	Ray Farmer and Nell Parker	—	Tributary to Pacific Ocean	SE	NE	8	18N	1W		H		Domestic and Irrigation, 1.75 acres	P-12030
18676	4/29/59	Wilson Freeman	—	Tributary to South Fork of Smith River	SW	SE	24	15N	2E		H		Irrigation, 120 acres	P-12081
18756	9/1/59	C. H. and B. McDaniel	—	Deer Creek	SE	NW	32	16N	2E		H		Irrigation, 73 acres	P-12218
19271	1/7/60	Way W. Barreling and Belle H. Stronberg	—	Boulder Creek	NW	SE	5	15N	2E		H		Irrigation, 83.33 acres	Pending
19274	1/11/60	William J. Buckner and Isabel M. Buckner	—	Gilbert Creek	SW	NE	5	18N	1W		H		Irrigation, 83.33 acres	Pending
19275	1/11/60	William J. Buckner and Isabel M. Buckner	—	Prickles Creek	NE	SW	35	16N	1W		H		Domestic and Irrigation, 2 acres	Pending
19276	1/11/60	William J. Buckner and Isabel M. Buckner	—	Buckner Creek	NW	SE	35	16N	1W		H		Domestic, stockwatering, and Irrigation, 3 acres	Pending
19321	3/24/60	Leban Properties, Inc.	—	Two tributaries to Middle Fork Smith River	SE	SE	19	17N	2E		H		Irrigation, 35 acres	Incomplete
19322	3/24/60	Leban Properties, Inc.	—	Tributary to Middle Fork Smith River	SW	SE	19	17N	2E		H		Domestic, stockwatering, and Irrigation, 3 acres	Pending

\* P - Irrigation permit number of application approved. L - Indicates license number of right confirmed. Incomplete - Indicates application not yet complete. Pending - Indicates application complete but not yet approved.





APPENDIX D

DETAILED DESCRIPTIONS OF  
CERTAIN SURFACE WATER DIVERSIONS

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## APPENDIX D

### DETAILED DESCRIPTIONS OF CERTAIN SURFACE WATER DIVERSIONS

This appendix presents additional data on certain surface water diversions which could not adequately be presented in Table 5 of the report.

#### Charles R. Coughlan and Nina G. Weller (Diversion 17N/2E-20R1; Middle Fork Subunit).

This diversion is from unnamed springs located about one-fourth mile south of the confluence of the North and Middle Forks of Smith River and was begun about 1852 by Horace Gasquet, who used it continuously until his death in 1896. In that year, Fred Frantz and J. B. Endert purchased the property and on May 25, 1896, they filed an application to appropriate water from springs tributary to Smith River. This filing is recorded in Book C of Locations at page 325, Del Norte County Records.

The owners of this diversion up to 1933, in order, were: (1) Horace Gasquet, (2) Fred Frantz and J. B. Endert, (3) Ralph W. Lake, (4) J. P. Bowman, (5) J. J. and Eleanor McNamara, (6) Roy and J. Leo Ward, and (7) A. D. and Kathryn Rutherford.

The Rutherfords were aware of the 1896 filing but were uncertain as to the validity of the water right. Consequently, on March 1, 1933, they filed an application with the Division of Water Resources, predecessor to the State Water Rights Board, to appropriate water by this same diversion (Application No. 7513). Subsequently, License Number 1958 was issued to them to divert 0.03 cubic feet per second for domestic use. Owners of the diversion system and water rights since the Rutherfords are Harlan Wilson, Louis K. Shostak, Mr. and Mrs. Gordon R. Weller, and Nina G. Weller and Charles R. Coughlan.

Upper Field Gulch Ditch (Diversion 17N/2E-20R2; Middle Fork Subunit).

This diversion is from unnamed springs located about three-tenths mile southeasterly from the confluence of the Middle and North Forks of Smith River. It was begun about 1852 by Horace Gasquet, and has been used continuously ever since. After the death of Mr. Gasquet in 1896, the diversion and its area of use were purchased by Fred Frantz and J. B. Endert. On May 29, 1896, these owners filed an application to appropriate "all the water of a tributary of Smith River" for this diversion. The filing is recorded in Book C of Locations at page 323, Del Norte County Records.

Other owners of the diversion in order following those named above were Ralph W. Lake, J. P. Bowman, J. J. and Eleanor McNamara, and C. Roy and J. Leo Ward. Throughout this period, ownership of the diversion remained undivided, but the Wards deeded it in three parts to separate parties. A one-third interest in the ditch, together with part of the area of use, was deeded to B. C. Endert, and another third to Joe Woods. At a later date the Wards deeded the remaining one-third interest to A. D. and Kathryn Rutherford. The Rutherfords were aware of the 1896 appropriation, but were uncertain as to the validity of the water right due to the property having been subdivided. Consequently, they filed an application with the Division of Water Resources, predecessor of the State Water Rights Board, on March 1, 1933, (Application No. 7512). Subsequently, they were granted License Number 1734 for the diversion of 0.025 cubic feet per second for the irrigation of two acres. This water right has been assigned in order to Harlan Wilson, Louis K. Shostak, Mr. and Mrs. Gordon R. Weller, and Nina G. Weller and Charles R. Coughlan. Besides acquiring this water right and the interest in the diversion held by the Rutherfords, the Wellers also bought the one-third interest in the diversion owned by Joe Woods. The combined two-thirds interest in the diversion and the 1933 appropriative water right were assigned to the present owners in 1958. B. C. Endert has retained his one-third interest in the diversion to the present.



SUBUNITS OF SMITH RIVER HYDROGRAPHIC UNIT

STATE OF CALIFORNIA  
 THE RESOURCES AGENCY OF CALIFORNIA  
 DEPARTMENT OF WATER RESOURCES  
 NORTHERN BRANCH  
 LAND AND WATER USE  
 SMITH RIVER HYDROGRAPHIC UNIT  
 LOCATION OF UNIT  
 1958







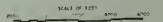
- LEGEND**
- GRAVITY DIVERSION
  - PUMP DIVERSION
  - DIVERSION CANAL OR DITCH
  - DIVERSION PIPE
  - STEEL RAILROAD STATION
  - HYDROGRAPHIC UNIT BOUNDARY
  - LANDS RECEIVING FULL IRRIGATION
  - LANDS USUALLY IRRIGATED BUT RISK OF FALLOW IN 1988
  - NATURALLY IRRIGATED MEADOWLANDS
  - GRASS-FARMED LANDS
  - URBAN LANDS
  - RECREATIONAL LANDS
  - LANDS IRRIGATED WITH GROUND WATER
  - LANDS IRRIGATED WITH BOTH GROUND AND SURFACE WATER
  - WATERSHED BOUNDARY

KEY TO NUMBERING SYSTEM

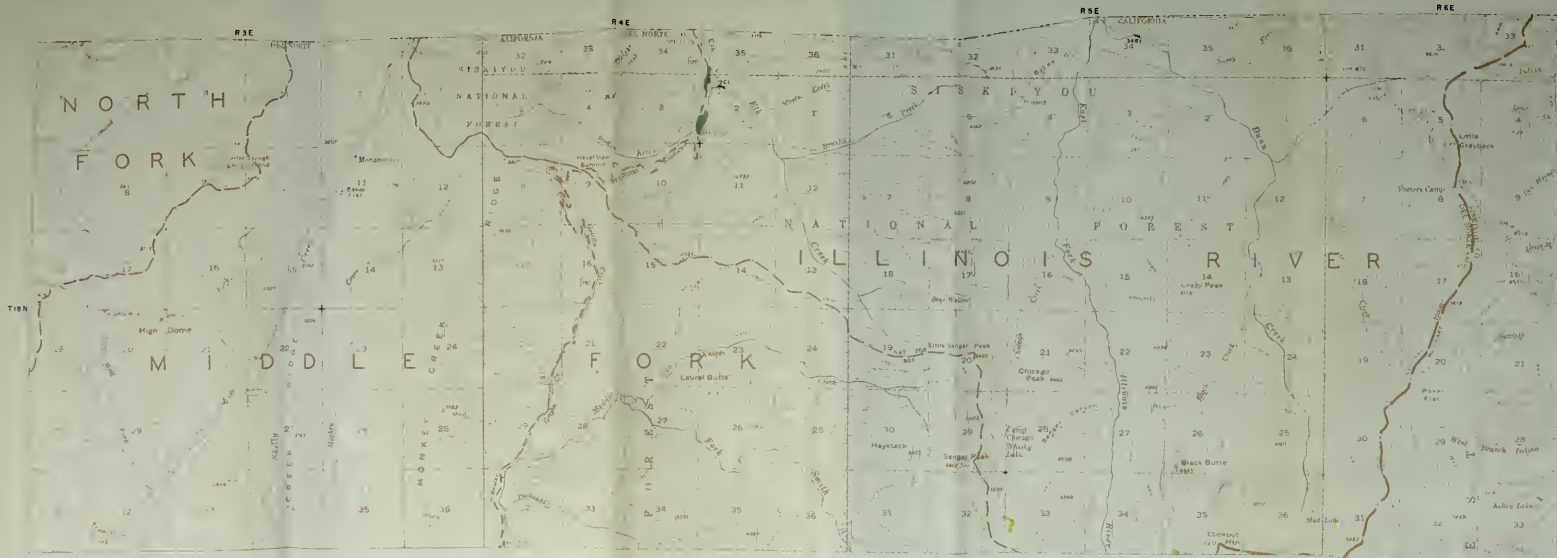


STATE OF CALIFORNIA  
THE RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES  
NORTHERN BRANCH  
LAND AND WATER USE  
SMITH RIVER HYDROGRAPHIC UNIT  
LAND AND WATER USE  
T18-19N, R1W-2E H65M  
1958

HYDROGRAPHIC UNIT BOUNDARY  
SHOWN BY DASHED LINE  
SUBDIVISION OF  
SECTION 36 DIVISION 10, 11, 12







INDEX TO SHEETS



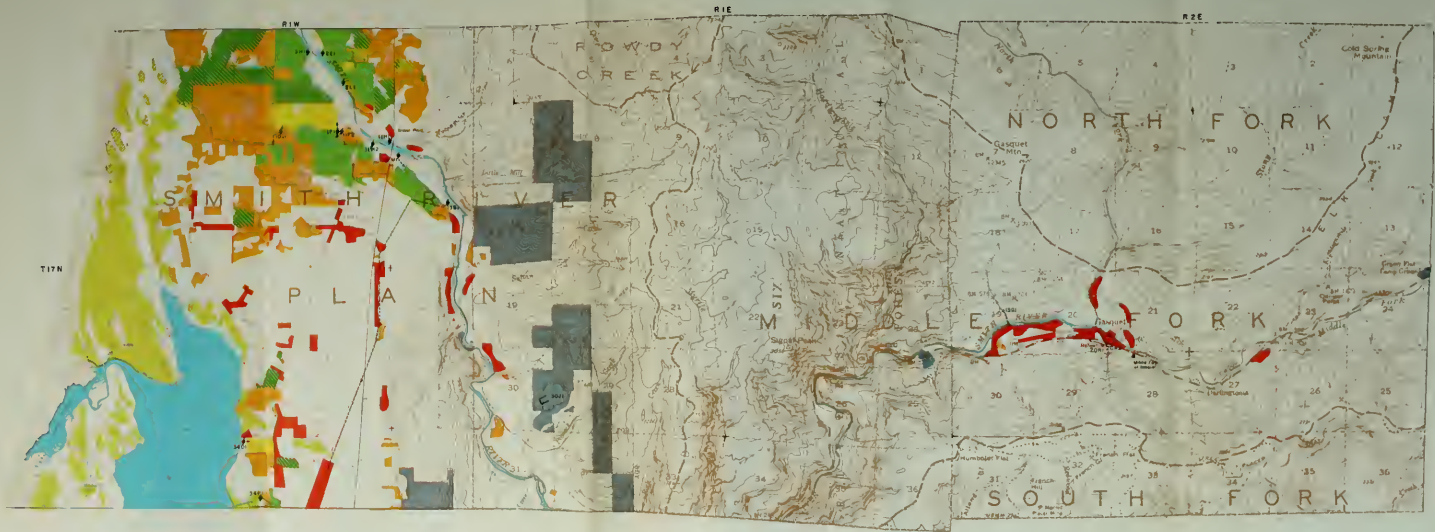
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STATE OF CALIFORNIA  
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NORTHERN BRANCH  
LAND AND WATER USE  
SMITH RIVER HYDROGRAPHIC UNIT  
LAND AND WATER USE  
T18-18N, R5-18E, W18M  
1958  
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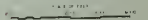


- LEGEND**
- 1. RIVER
  - 2. CREEK
  - 3. CANAL
  - 4. DRAINAGE
  - 5. FLOOD PLAIN
  - 6. WETLANDS
  - 7. URBAN
  - 8. PASTURE
  - 9. IRRIGATED
  - 10. FOREST
  - 11. OPEN LAND
  - 12. WATER
  - 13. MARSH
  - 14. SAND
  - 15. GRAVEL
  - 16. CLAY
  - 17. SILT
  - 18. ROCK
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  - 20. PERMANENT
  - 21. TEMPORARY
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  - 27. IRRIGATED
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  - 30. WATER
  - 31. MARSH
  - 32. SAND
  - 33. GRAVEL
  - 34. CLAY
  - 35. SILT
  - 36. ROCK
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  - 921. TEMPORARY
  - 922. INTERMITTENT
  - 923. SEASONAL
  - 924. WETLANDS
  - 925. URBAN
  - 926. PASTURE
  - 927. IRRIGATED
  - 928. FOREST
  - 929. OPEN LAND
  - 930. WATER
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  - 932. SAND
  - 933. GRAVEL
  - 934. CLAY
  - 935. SILT
  - 936. ROCK
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  - 971. SILT
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  - 982. FOREST
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  - 992. PERMANENT
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  - 994. INTERMITTENT
  - 995. SEASONAL
  - 996. WETLANDS
  - 997. URBAN
  - 998. PASTURE
  - 999. IRRIGATED
  - 1000. FOREST

KEY TO NUMBERING SYSTEM



STATE OF CALIFORNIA  
THE RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES  
NORTHERN BRANCH  
LAND AND WATER USE  
SMITH RIVER HYDROGRAPHIC UNIT  
LAND AND WATER USE  
T17N, R1W, 2 R H&M  
1958







LEGEND

- LANDS RECEIVING FULL IRRIGATION
- LANDS USUALLY IRRIGATED BUT NOT IN 1958
- NATURALLY IRRIGATED MEADOW LANDS
- DRY FARMED LANDS
- URBAN LANDS
- RECENT CORAL LANDS
- DIVERTING DIVERSION
- FLOOD DIVERSION
- DIVERSION CANAL OR DITCH
- DIVERSION PIPE
- STREAM GAUGE STATION
- HYDROGRAPHIC UNIT BOUNDARY

KEY TO NUMBERING SYSTEM



OVERSEAS SHOWN ARE NUMBERED BY  
TOWNSHIP RANGE AND SUBDIVISION OF  
SECTION, 24 VERSION 1-5-16-24

STATE OF CALIFORNIA  
THE RESOURCES AGENCY OF CALIFORNIA  
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LAND AND WATER USE  
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LAND AND WATER USE  
T17N, R3 - 5E H88W  
1958

SCALE OF FEET  
0 1000 2000 4000







**LEGEND**

- LANDS RECEIVING IRRIGATION
- LANDS USUALLY INUNDATED BUT DRY OR FALLOW IN 1958
- NATURAL RIPARIAN, WETLANDS
- DRY FARMED LANDS
- WETLANDS
- WETLANDS
- LANDS IRRIGATED BY DRAINAGE DITCH
- MARSH LANDS

**KEY TO NUMBERING SYSTEM**

0 1 2 3 4 5 6 7 8 9

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

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T 16 N, R 2 W-2 E HB&W  
1958

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KEY TO NUMBERING SYSTEM



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DEPARTMENT OF WATER RESOURCES  
NORTHERN BRANCH

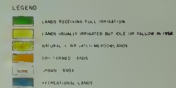
LAND AND WATER USE  
SMITH RIVER HYDROGRAPHIC UNIT

LAND AND WATER USE  
T I E N, A S - A E H O S M  
1958

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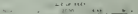




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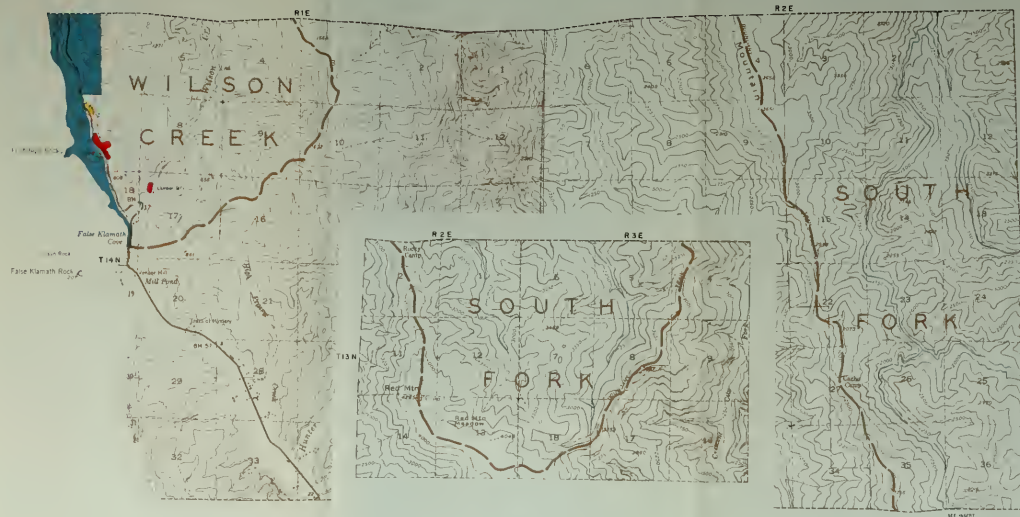
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#### KEY TO NUMBERING SYSTEM



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T 14 N R 1 - 3 E H 30 M  
1958

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TUNE

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None

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1992

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NAME \_\_\_\_\_

- LANDS RECEIVING FLOOD IRRIGATION
- LANDS USUALLY IRRIGATED BUT DUE TO FALLOW OR IN-USE
- USUALLY IRRIGATED WETLANDS
- DRY FORMED LANDS
- URBAN LANDS
- AFRICAIR OIL LANDS

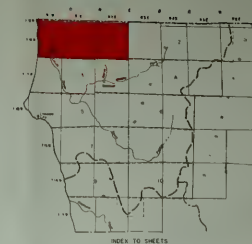
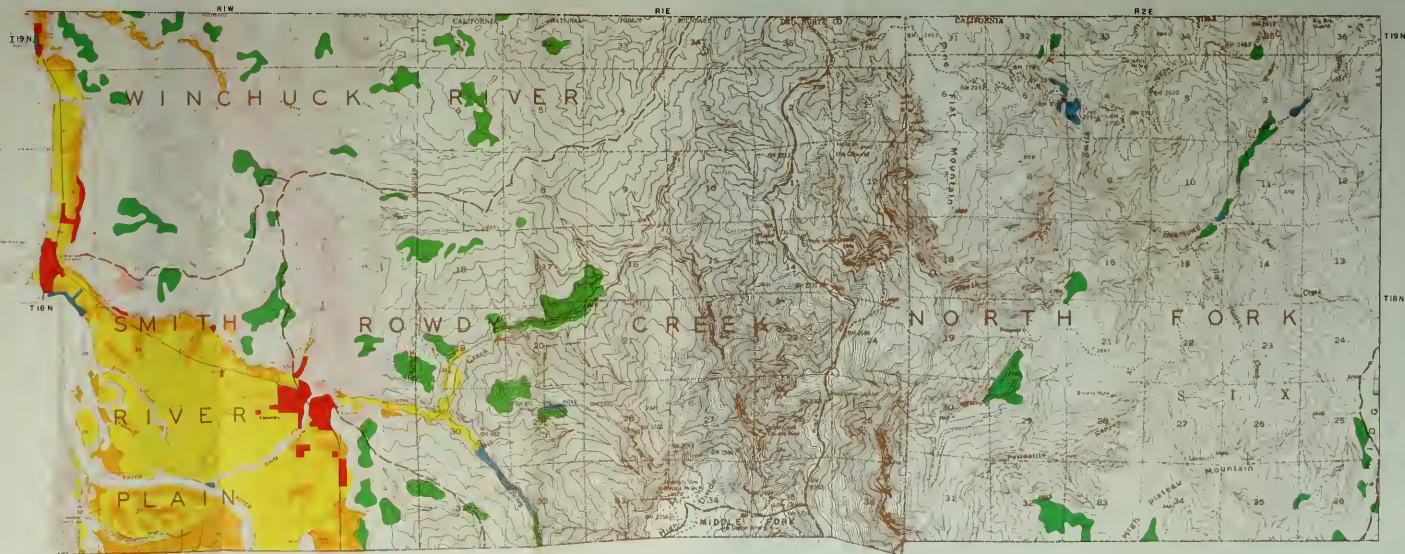
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T 14 N, R 3 - 4 E H98M  
1958





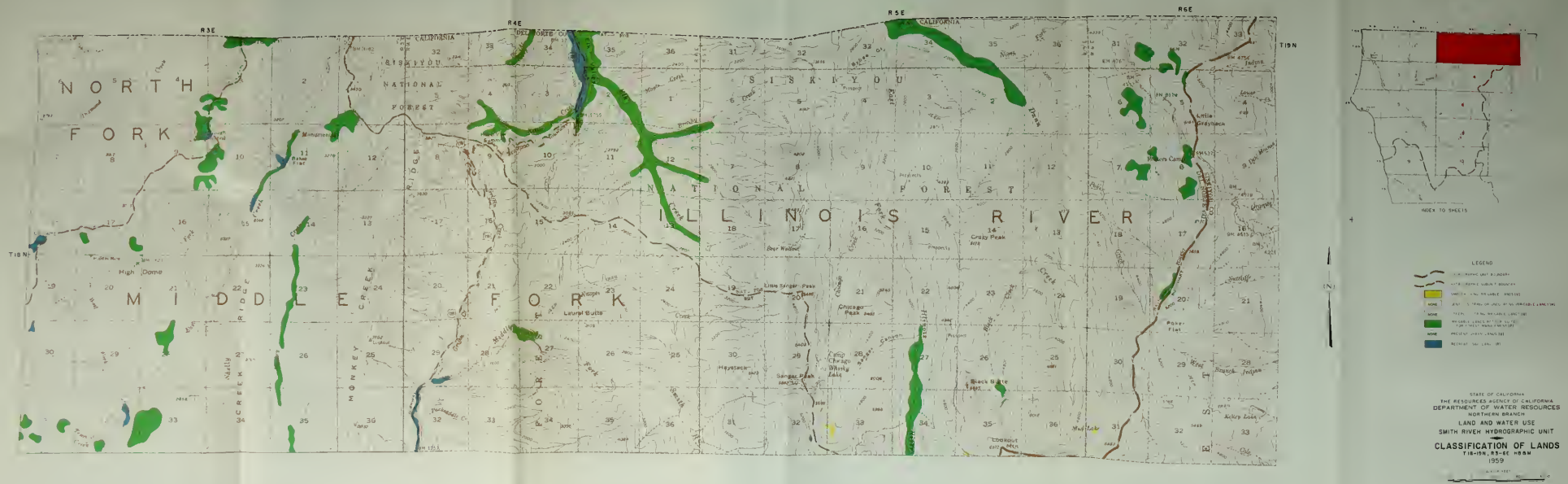


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 T19-N, R19-E, R20-E, R21-E  
 1959

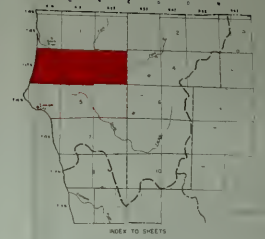
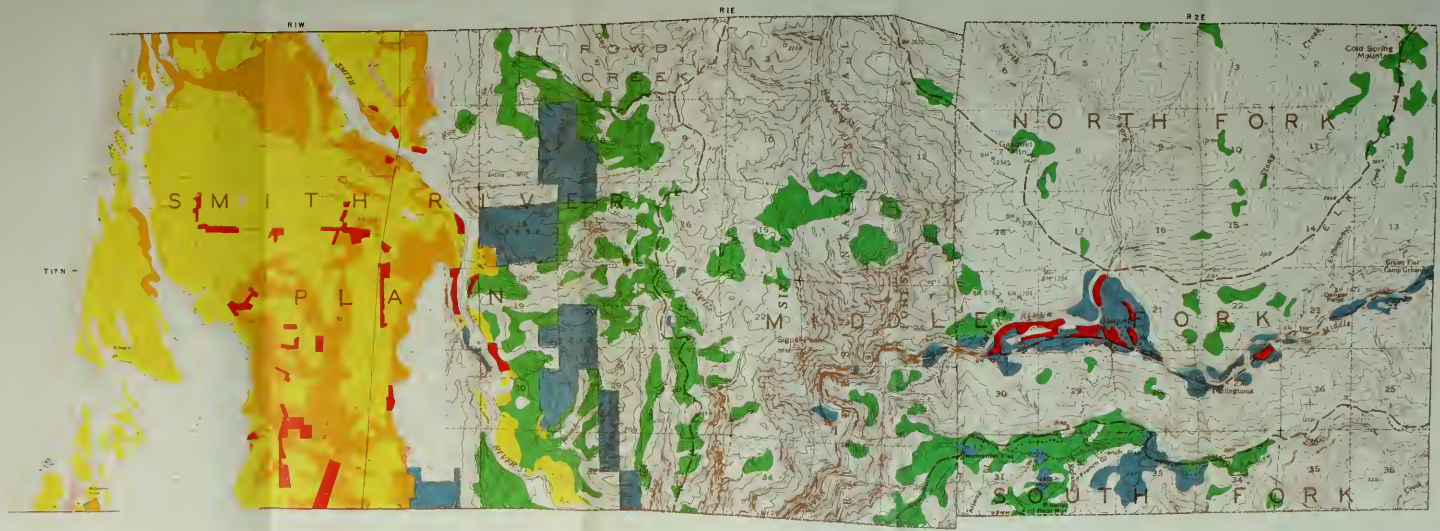
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- LEGEND
- HYDROGRAPHIC UNIT BOUNDARY
  - HYDROGRAPHIC SUB-UNIT BOUNDARY
  - SMOOTH SLOPING PRSABLE LANDS
  - STEELY SLOPING PRSABLE LANDS
  - STEELY SLOPING PRSABLE LANDS
  - PRSABLE LANDS BETTER SUITED FOR FOREST MANAGEMENT
  - PRESENT URBAN LANDS (U)
  - RECREATIONAL LANDS (R)
  - WATER LAND

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1959









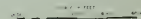




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  - MODERATELY SLOPING LAND - 20% TO 30%
  - STEEPLY SLOPING LAND - 30% TO 40%
  - MODERATELY SLOPING LAND - 40% TO 50%
  - FOREST LAND - 50% TO 60%
  - FOREST LAND - 60% TO 70%



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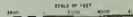
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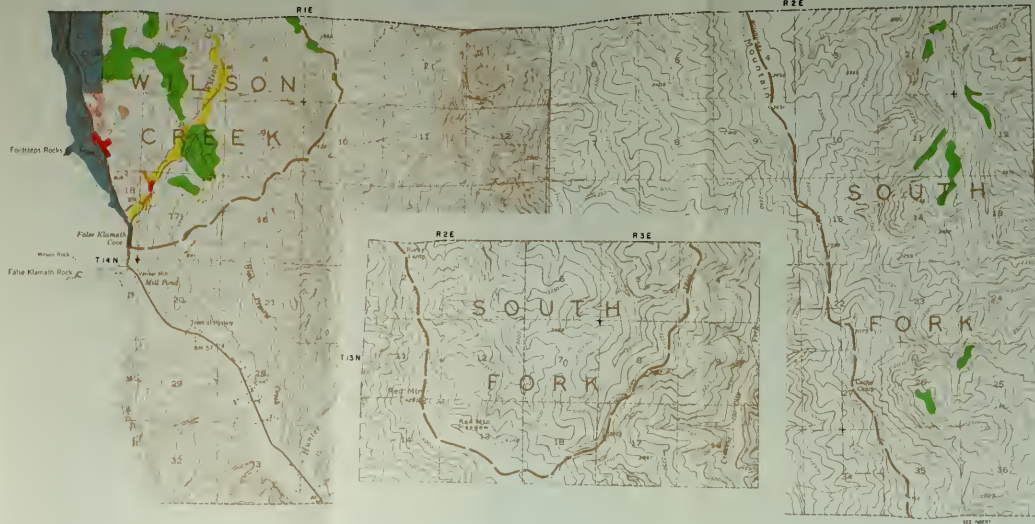
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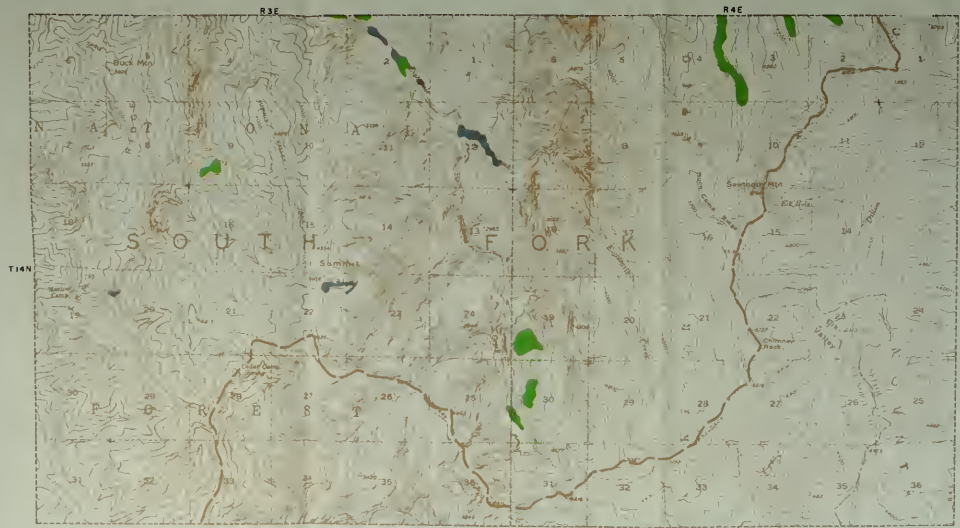
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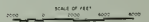




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